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PHYSIOLOGIC ASPECTS OF OPIUM ADDICTION *

ARTHUR B. LIGHT, M.D.
PHILADELPHIA

The etiology and subsequent events attendant on addiction to opium or such of its derivatives as are known to be habit forming are quite clear. Its continued use will most certainly at some time be followed by a distinct euphoria, so intense that few, if any, who have ever experienced it can resist the desire for its return. Attempts to obtain from numerous addicts an adequate description of their feelings and emotions while under the influence of the drug has left much to be desired. "God's own medicine," a term frequently used by Osler, when he prescribed morphine, is a common expression used by the addict. Homer's Odyssey [1] contains a sentence which reads, "Whoe'er his wine so medicated drinks, he shall not pour all day the tears down his wan cheek, although his father and his mother both were dead, nor even though his brother or his son had fallen in battle, and before his eyes." Its effects have frequently been described as the bridge between ambition and accomplishment. "It makes you feel as if you were sitting on top of the world," is another favorite description. The nurse about to administer a hypodermic is universally described as an angel from heaven.

Despite the difficulty in ascertaining an adequate picture of the mind under the influence of opium, there is not the slightest doubt that repetition of its use is an effort to regain a surcease from the realities and humdrum of life. This objective, when first desired, is obtained from the usual therapeutic doses. The effects last from three to six hours and are followed by nothing more than a return to normality and a vivid remembrance. Its frequent use, however, soon results in two definite departures from the preceding statement; namely, the therapeutic dose is no longer followed by the same intensity of the euphoria, and in turn with its disappearance the normal state is replaced by a definite train of symptoms, so well described in the literature,[2] known as the withdrawal symptoms. When a person has reached this stage in the use of opium, he is described by addicts as "having a habit," or being "hooked." The continuation of small doses will prevent the appearance of the withdrawal symptoms and maintain the unfortunate one in a comfortable state but lacking the intense euphoria. This procedure, however, is followed by a very small minority; the majority, seeking the "kick" or "thrill," rapidly increase the amounts taken until enormous quantities are reached.

If at any time the drug is abruptly withdrawn, regardless of the amounts used, the withdrawal symptoms are inevitable. They reach their height about the end of the third day, then gradually subside, and disappear at the end of ten days or two weeks. With the disappearance of the withdrawal symptoms, tolerance has also disappeared and euphoria can and will be obtained from a therapeutic dose. Recourse to the drug at this point results in the same cycle again, a development of tolerance, a tendency for the disappearance of the euphoria and the return of the withdrawal symptoms following abrupt cessation of its use.

SOMATIC CHANGES

The resultant tolerance to amounts of opium or its derivatives that would prove fatal to nonusers, the intense craving and the constancy of the withdrawal symptoms attendant on the absence of the drug have led to a wide acceptance of the belief that addiction leads to bodily changes that are abnormal and harmful. This view is strengthened by the casual appearance of many addicts who appear shabbily dressed and present a picture of emaciation and general ill health. The fact that many of these unfortunate people are criminals, shrewd and crafty, with no sense of morals has added to this belief. On the other hand, Bishop [3] and Kraepelin [4] recognize the possibility of addicts escaping detection for years, if the general hygiene is good.

One of the first objectives in our studies of the various phases of the opium addiction problem was to find out definitely, if possible, the existence of any physiologic or structural changes in patients with addiction of long standing. In all studies to be reported in this paper, the drug used was morphine and, except when otherwise stated, was administered hypodermically.

Sufficient morphine was always administered to prevent withdrawal symptoms and to produce drug comfort. In practically every instance, this procedure with a well balanced diet, rich in calories, was followed by marked gains in weight. Selecting 100 cases at random, a careful physical examination resulted in absolutely negative returns except for scars of previous abscesses, the result of infection from hypodermic punctures,

* From the Narcotic Wards of the Philadelphia General Hospital.

* Read before the Section on Pharmacology and Therapeutics at the Eighty-First Annual Session of the American Medical Association, Detroit, June 26, 1930.

1. Homer's Odyssey, book IV, verse 280, English translation by William Cowper, printed for J. Johnson, No. 72 St. Paul's Churchyard, London, 1791.

2. Smith, G. H.: Communication to Dr. Johnson, Lancet **1**:707, 1841-1842. Levinstein, E.: Die Morphiumsucht, 1878, p. 14. Sollier, P.: La demorphinisation et le traitement rational de la morphinomanie, Semaine méd., 1894, p. 146.

3. Bishop, E. S.: Narcotic Drug Problem, New York, Macmillan Company, 1920, p. 47.

4. Kraepelin, Emil: Lectures on Clinical Psychiatry, ed. 3, translated from ed. 2 (German), revised and edited by Thomas Johnstone, London, Bailliere, Tindall and Cox, 1913.

found in about 70 per cent. We were unable to detect a single sign or symptom suggestive of drug action. In many of the patients the pupils were contracted; a few, however, failed to show this condition. Careful measurements of the height and weights showed an average of 0.2 per cent above the normal compared to the average normal weight accepted by life insurance companies. Studies of vital capacities, efficiency tests, heart and circulation, the blood, metabolism, endocrine functions, kidney and liver function, gastro-intestinal tract, water balance, in fact all the modern clinical tests to determine changes in physiologic function, were carried out in a sufficient number of cases to lead us to the conclusion that addiction to opium or its derivatives does not produce any abnormal or harmful changes in physiologic mechanisms.[5]

In addition to these studies, we were fortunate to be able to study a severe case of lobar pneumonia in one addict. Throughout the period of fever, crises and convalescence, a daily dosage of 15 grains (1 Gm.) was administered. The physical signs, clinical chart, studies of the blood, character and duration of the illness were identical with that of a severe case of lobar pneumonia in a nonaddict.

TOLERANCE AND FATE OF MORPHINE

The development and existence of tolerance to opium and its derivatives has been recognized for many years. De Quincey [6] stated that at one period in the history of his drug addiction he used 133 drachms (500 cc.) of laudanum, or approximately 72 grains (4.7 Gm.) of morphine, daily. Cognizant of the frequent unreliability of the addict as to the daily amounts used, as well as his inability to tell accurately because of frequent adulteration by pedlers, we carried out a series of experiments to test the extent of tolerance in patients before the drug was withdrawn. During the period of administration, careful observations were made continuously on the pulse, respiration and blood pressure as well as on the patient's general condition. One addict received 30 grains (2 Gm.) of morphine intravenously in two hours and twenty-four minutes. At the end of the last injection there was no change in the blood pressure, pulse rate, respiration, chemical condition of the blood or electrocardiographic tracing. His usual dose during this period would have been 4 grains (0.26 Gm.), so that he was tolerant to at least seven times the dose he was accustomed to receive.[7] Several addicts receiving 15 grains (1 Gm.) of morphine daily were raised to 60 grains (4 Gm.) daily within a period of three to five days without any detectable changes in physiologic behavior or function. These additional amounts did not prolong the absence of the craving.

Proof that this tolerance is still present forty-eight hours after abrupt withdrawal is found in several experiments in which the drug was administered in dosages similar to those given prior to this period. In one addict 20 grains (1.3 Gm.) was administered intravenously in fifty-six minutes. Not a single patient showed any significant reaction except immediate relief from the withdrawal symptoms and a return of a feeling of well being.

On the other hand, evidence that tolerance has disappeared following complete cessation of the withdrawal symptoms is based on the death of one of our patients and the collapse of two others, when, following their discharge from the hospital, amounts similar to those used before treatment were again used. The majority of addicts are aware of this change in tolerance, a factor frequently present in the seeking of treatment. It is almost universal on their part to request on approximately the fourth day of their treatment a small dose, usually a quarter grain (16 mg.) to help them from their extreme depression. What we believe they really are seeking is an accurate gage of their own tolerance. The rapidity in the apparent improvement and enthusiastic endorsement of the treatment that frequently follows the "pick-up,"—the term used by the addict for the quarter grain of morphine—is undoubted evidence in favor of this view. His tolerance is gone, a quarter grain is again sufficient to produce the euphoria. The object of his treatment has been attained.

Studies of the mechanism of tolerance were first inaugurated by Faust,[8] who concluded from work on dogs that the animal body developed the capacity to destroy increased amounts of morphine, thus preventing damage to vulnerable tissues. Further experiments by Rubsamen [9] on rats led him to accept Faust's theory in part, but to believe that in addition there must be a certain amount of tolerance developed, as he was able to recover sufficient morphine from tolerant rats to kill nontolerant rats. Terruchi and Kai,[10] confining their studies to rabbits, accept the postulate of increased destruction, but finding large quantities of morphine in the muscles and only traces in the liver and brain, attribute to the tolerant body the power of increased destruction, and a mechanism in the muscles that rapidly removes the morphine from the blood and prevents it from attacking the central nervous system.

Our studies [11] in this field consisted in the administration of dosages of 15, 30 and 60 grains (1, 2 and 4 Gm.) daily to addicts and the measurement of excretion in the urine and feces. Fecal morphine elimination was very irregular and fell far below that of the urine. In the urine, however, regardless of the amounts administered, we were always able to recover practically 10 per cent of the amount given; that is, 90 per cent was retained or destroyed. Thus there is always the same relationship between the amounts taken and amounts eliminated in the urine. That the 90 per cent is changed into something else than morphine is based on several experiments, where immediately following abrupt withdrawal of the drug only 10 per cent of the last dose could be recovered, and this again within a period of four hours. The end of this rapid decline in excretion coincided with the return of the craving and the appearance of the first signs of withdrawal symptoms.

5. Light, A. B., and Torrance, E. G.: Opium Addiction: II. Physical Characteristics and Physical Fitness of Addicts During Administration of Morphine, Arch. Int. Med. **43**: 326-334 (March) 1929; III. The Circulation and Respiration of Human Addicts During the Administration of Morphine, ibid. **43**: 556-567 (April) 1929. Karr, W. G.; Light, A. B., and Torrance, E. G.: Opium Addiction: IV. The Blood of the Human Addict During the Administration of Morphine, ibid. **43**: 684-690 (May) 1929. Light, A. B., and Torrance, E. G.: Opium Addiction: V. Miscellaneous Observations of Human Addicts During the Administration of Morphine, ibid. **43**: 878-889 (June) 1929.

6. De Quincey, Thomas: The Autobiography and Confessions of an Opium Eater, Old English ed., London, George Newnes Limited, p. 640.

7. Light, A. B., and Torrance, E. G.: Opium Addiction: VIII. The Effects of Intramuscular and Intravenous Administration of Large Doses of Morphine to Human Addicts, Arch. Int. Med. **44**: 376-394 (Sept.) 1929.

8. Faust, E. S.: Ueber die Ursachen der Gewohnung an Morphin, Arch. f. exper. Path. u. Pharmakol. **44**: 217, 1900.

9. Rubsamen, W.: Experimentelle Unteranchungen über die Gewohnung an Morphin, Arch. f. exper. Path. u. Pharmakol. **59**: 227, 1908.

10. Terruchi, Yutaka; and Kai, Sotaro: On the Fate of Morphine Which Has Been Injected into the Animal Body, J. Pharmacol. & Exper. Therap. **31**: 177 (June) 1927.

11. Light, A. B.; Fry, Edith G.; Torrance, E. G., and Wolff, W. A.: Opium Addiction: X. The Excretion of Morphine by Human Addicts, Arch. Int. Med. **44**: 862-869 (Dec.) 1929.

Similar studies were carried on in addicted dogs in the Laboratory of Pharmacology of the University of Pennsylvania by several members of our staff and practically identical results obtained. In addition, studies of the excretion in normal dogs were made by Wolff, Riegel and Fry.[12] It was found by these investigators that the amounts recovered in the urine and feces from normal dogs was no greater or less than that found in addicted human beings or dogs. Their inevitable conclusion was that tolerance to morphine is not characterized by a significant increase in the capacity to destroy morphine.

WITHDRAWAL SYMPTOMS

The constancy and similarity of the withdrawal symptoms, the extreme variation in intensity, their dramatic disappearance following readministration of the drug and rapid return of a feeling of well being, are all features of this phase of the problem that are well recognized. They have in turn been responsible for the controversy that exists concerning the etiology of the symptoms. One group holds strongly to the belief that the whole picture is one of hysteria, similar to the hysteria of the child who is deprived of its toy and is promptly seized with an attack of vomiting. Those holding to the other belief insist on somatic changes due to deprivation of the drug, just as there is a failure to burn sugar in the absence of sufficient insulin.

By means of the same methods of study used during the administration of sufficient drug to detect somatic changes, the same addicts were again studied following a period of forty-eight hour abrupt withdrawal and again after readministration and return of the feeling of well being.[13] The following measurable changes were found: losses of weight ranging from 3 to 15 pounds (1.4 to 6.8 Kg.), concentration of the blood, and a polymorphonuclear leukocytosis in 60 per cent of our cases, in one case reaching 28,000 per cubic millimeter. All other tests were negative, including tests of physical fitness, despite the fact that the addicts complained of extreme weakness. Following the return of well being after morphine was again administered, the loss of weight was still present, the blood concentration was unchanged, and in those cases in which a leukocytosis was present the total number of leukocytes had actually increased, the person showing 28,000 now reaching 30,000. Despite the fact that the addict again professed to feel well and strong, the tests of physical fitness showed a poorer response.

Studies[14] in water balance, checked with a similar study on normal persons, led us to the conclusion that the loss of weight was due in a large degree to the failure on the part of the addict to take food and water during the period of withdrawal, together with a degree of restlessness. This undoubtedly accounts for the blood concentration as well. Neither the blood concentration nor the leukocytosis can be held as responsible for the state of ill being, as both these changes were still present following the readministration of the drug and the return of the state of well being.

12. Wolff, W. A.; Riegel, C., and Fry, Edith G.: The Excretion of Morphine, Am. J. M. Sc. **177**: 306 (Feb.) 1929.
13. Light, A. B., and Torrance, E. G.: Opium Addiction: VI. The Effects of Abrupt Withdrawal Followed by Readministration of Morphine in Human Addicts, with Special Reference to the Composition of the Blood, the Circulation and the Metabolism, Arch. Int. Med. **44**: 1-16 (July) 1929.
14. Light, A. B., and Torrance, E. G.: Opium Addiction: IX. Water Balance and the Withdrawal of Morphine, Arch. Int. Med. **44**: 693-699 (Nov.) 1929.

The intensity of the symptoms can certainly be controlled by the addict himself, even to the degree at which they are scarcely perceptible. One addict undergoing treatment in our ward appeared to suffer intensely and exhausted our patience to the utmost. A year later, when he was arrested as a shop lifter and known to be addicted again, the police surgeon was unable to detect any withdrawal symptoms except a slight diarrhea. The addict was well aware that, could the charge of drug addiction be substantiated, he would face an additional sentence.

This is but one of numerous experiences which have led us to the belief that addicts will and can control to a large degree the intensity of their withdrawal symptoms. This factor, together with the largely negative results obtained in our studies of the withdrawal symptoms, lead us to believe that they are frequently complicated by hysteria, and that further studies should be combined with psychiatric and psychologic investigations.

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TREATMENT OF DRUG ADDICTION*

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NEW YORK

To confine drug addiction only to the habitual use of opium derivatives is too narrow a conception. It is really the habitual use of any drug for the purpose of avoiding emotional strains of life.

In its mildest form it is manifested by the habitual taking of the hypnotic group of drugs; in its more intense narcotic forms it is seen in the excessive use of alcohol or of the opium alkaloids. The causation is the same in all instances, the difference being only one of degree, the psychologic demand being for forgetfulness of life's worries, or even the obliteration of all consciousness to escape the misery and unhappiness of existence.

It is immaterial whether custom and public opinion condone alcoholic drunkenness and condemn morphine addiction, the basic principle of causation for the two is the same.

The mildest form of drug addiction to dodge the unhappiness and unsolved problems of life is the use of the hypnotic group. Formerly chloral was used; today it is usually some one of the many members of the barbituric acid group.

Chloral taken alone, or mixed with bromides, produces its harm by causing an inaccuracy of mental judgment, and even delusions and distortions of outlook. The bromides, although usually thought harmless, produce a distinct delusional psychosis when taken to excess. The danger of the barbituric acid group is that perversion of personality which frequently occurs in those who take them in the usual hypnotic doses. The mildest exhibition of this is seen in the perversity and resistance of these patients. They prefer to say the mean and sharp thing rather than to be agreeable; they are antagonistic to all suggestions, they are suspicious, ill tempered, selfish and cranky, and they cause a great deal of unhappiness and misery to themselves and to others.

* Read before the Section on Pharmacology and Therapeutics at the Eighty-First Annual Session of the American Medical Association, Detroit, June 26, 1930.

The habitual use of barbital produces a distinct psychosis with hallucinations and delusions of persecution, requiring at best several weeks for recovery.

This perversion of personality and the injury these drugs do are little realized in the profession, and it causes a great deal of misunderstanding and maladjustment of individuals to their environment. Of course, the unsolved problems of life are the cause of insomnia. If the physician solves these, he relieves his patient of his habit as well as of his worries and unhappiness. To solve family maladjustments requires wisdom and tact, not prescriptions, but is one of the most valuable services a physician can render.

The more serious forms of addiction to drugs for their narcotic value is that produced by the taking of alcohol or morphine. The drinking of youth, and the social drinking, is simply an endeavor to ease up the wear and tear of life, to cut off all inhibitions, all restraint of authority, to inhibit the sense of inferiority, to remove all restraints, so that the emotional side of life may be lived more intensely and enjoyed more abundantly. The ease with which relief from any annoying factor in life is obtained by the use of alcohol

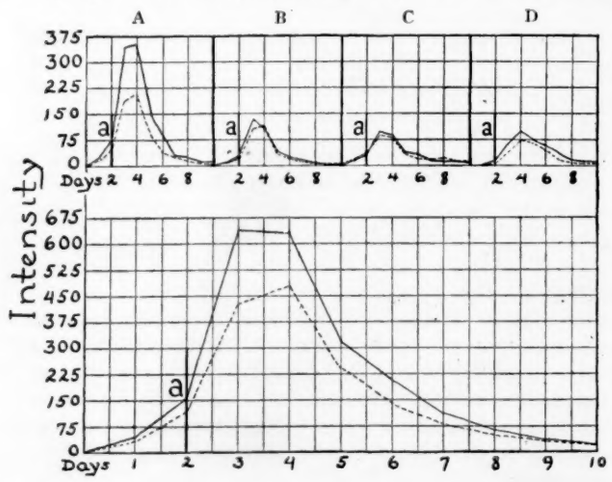

Chart 1.—In this and the accompanying charts *A* indicates gastrointestinal symptoms consisting of nausea and vomiting, abdominal cramps and diarrhea; *B*, muscular discomfort, aches and twitchings; *C*, restlessness, mental and physical, with increased psychomotor activity; *D*, prostration (subjective and objective weakness). The charts are redrawn from charts used in the report of the Mayor's Committee on Drug Addiction, New York City, 1929. In this chart the sections at the top present a comparison of four major withdrawal symptom groups (*A, B, C, D*) under Narcosan; solid line, Narcosan; broken line, control. Below is a composite graph of the four major symptom groups; solid line. Narcosan, sixty-eight cases; broken line, control sixty-eight cases, average of 100 controls; in all the charts, *a* indicates period on morphine, which was stopped and treatment begun as indicated by heavy vertical line.

teaches humanity that it is the most accessible of narcotics. All periodic excessive drinking, as well as the steady habitual excessive use of alcohol when such use is evidently against the self interest of the individual and to his injury, is a pathologic use of alcohol as a drug for its narcotic value.

There is no difference between using this soluble narcotic and in taking morphine; both blunt unhappiness, both blunt the bitterness of failure, both bring about the temporary forgetfulness of memories too bitter to be borne. Old men, however, in whom there is no longer the youthful desire to inhibit restraint that life may be enjoyed more fully, use alcohol for its full narcotic value, to forget utter defeat in life, and to obtain the obliteration of all consciousness.

Alcohol is thus more frequently used than morphine. It can be used to its full narcotic power, then set aside, and used again when memories are too unhappy. It is used rather than morphine by those whose personalities have been less deeply hurt, or who require a temporary rather than a continuous narcotic, because they realize that the use of alcohol will be condoned while morphine will be condemned. In the tragic conflict between what man has been taught that he should have in life and what he has been able to get, he has found in alcohol and morphine equally sinister but equally effective peacemakers.

The treatment of alcoholic excess is the psychologic rearrangement of the personality by finding some emotional compensation that will permit each individual to harbor in his consciousness the bitter unforgettable memories, and still control his actions through intelligence and not solely by emotional impulse.

The treatment of the individual alcoholic patient must be through sleep, sufficiently prolonged to relieve his acute poisoning. Then when he returns to consciousness, the psychologic problems can be discussed. It is useless to endeavor to do this until the patient has been unpoisoned. After prolonged care the problems of these unhappy souls may be solved, and they may be enabled to go on without this narcotic addiction.

The usual narcotic of those who are brought to intense physical suffering through illness is one of the opium derivatives, usually morphine. These patients who thus acquire morphine addiction form a distinct group, separated by the vigor of their stable personalities from those who take morphine to supply a psychologic deficit, and who usually possess an inadequate psychologic personality; these vigorous personalities feel the odium and condemnation which society places upon them; they realize that they must hide their habit, and of course their lying is a defense reaction to protect themselves from the condemnation passed upon them. These people are eager to get away from their drug and, if once freed from their addiction, will not, in the majority of instances, return to it. Experience through thirty years has taught me that the number of those taking morphine through legitimate medication, who have been caught in the toils of the drug through pain and illness, has enormously decreased. Not infrequently, however, one sees today professional men who have broken down through overwork and worry and have found their psychologic problems too severe to be answered by the taking of alcohol, or else many of them dread the unconsciousness inseparable from alcoholic excess and fear the exhibition of their personality under the influence of alcohol. These prefer the quiet taking of morphine, even under the bitterness of condemnation, for it keeps their sense of responsibility blunted, it helps them dodge the unhappiness of life, and they really deem it a psychologic necessity.

The great majority, however, of recurrent morphine addicts today are found among constitutionally inferior personalities, the so-called inadequate psychopathic group. In the work of the Mayor's Committee on Narcotic Addiction in New York City in the last year, it was found that 87 per cent of the 318 addicts coming under their care for study were of this inadequate psychopathic type; 42 per cent tended toward the dementia praecox type. There were also the types of criminalism, of nomadism, and of manic-depressive tendencies, but there were only 13 per cent who seemed to possess the average stabilized personality designated as normal. These inadequate personalities are not necessarily inadequate in their intelligence. They vary, of course, in the degree of their emotional sensibilities and their emotional reactions. Their intelligence does

not control their actions, and their actions are based on the emotional impulse and remain uncontrolled by their intelligence, however clever their degree of intelligence may be. They are not legally insane, but they show the same anomalies in their mental make-up as the insane. They differ only in degree, and they form the most trying problems of today in their proper care and treatment.

The recent work of Torrance and Light in Philadelphia has shown conclusively that there is no such

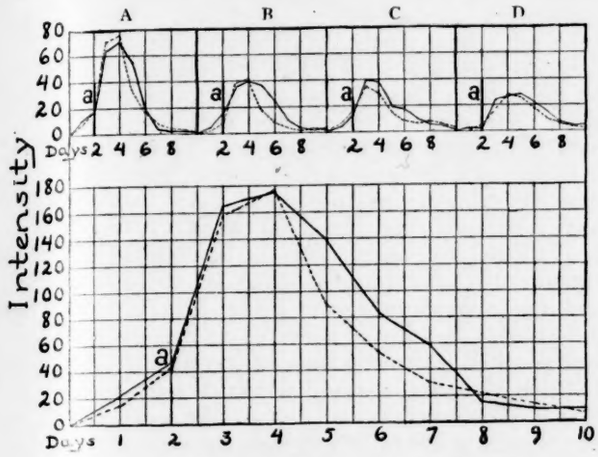

Chart 2.—Above, comparison of four major withdrawal symptom groups under atropine; solid line, atropine; broken line, control. Below, composite graph; solid line, atropine twenty-five cases; broken line, control twenty-five cases, average of 100 controls.

thing as an addiction disease; their work has shown that the physiologic processes in the bodies of those addicted to morphine do not vary from the average conditions found in nonaddicted persons. Their investigations under the New York Committee for the Study of Drug Addiction also showed that there were no physical neurologic changes found in these addicts. These apparently negative results are of the highest value, as they are the positive scientific evidence that an addiction disease produced by morphine does not exist. This fallacy had taken such hold of both the lay and the medical mind that the work of these men cannot be too strongly praised for its value in clearing up a much mooted question.

The work of the Mayor's Committee on Drug Addiction in New York City was undertaken to test the best method of treatment of the morphine addicts. The work formerly done in the penitentiary on Welfare Island in New York in the treatment of these addicts by Narcosan was continued. This work had been done without sufficient control. We believed that our knowledge of the symptoms of the withdrawal of morphine was sufficient to be used as a control. We had heretofore always controlled the withdrawal symptoms by codeine and did not realize the definite limitation of the withdrawal symptoms to from seventy-two to ninety-six hours' duration. From the results of our recent work in Bellevue Hospital on the Mayor's Committee, it is evident that this view had been an error of judgment, and the careful, strictly controlled observations of the Mayor's Committee have shown accurately the value of the various methods of treatment and of the drugs used in the treatment of morphine addiction.

In the accompanying charts, all observations have been translated into curves showing the intensity and duration of the various symptoms during withdrawal of morphine. It is evident from these curves that the withdrawal symptoms of morphine are self limited to from seventy-two to ninety-six hours.

One hundred patients were treated as controls. Narcotics were not given unless a patient was threatened with a serious collapse during his withdrawal period; sterile water, containing a little glycerin and colored with a few grains of bismarck brown to make it the same color as the Narcosan solution was given and neither the nurses who gave the injections, nor the patients themselves, could tell whether a control solution or the medication was being given. The injections were run parallel, and this removed from the patients all sense of fear that they were not receiving some narcotic treatment and definite medication. This enabled us to judge the reactions following the treatment as being the real withdrawal symptoms. The work on Narcosan thus strictly controlled was continued.

Scopolamine and atropine were also tested in a similar manner since these two drugs form the basis of nearly all treatments for morphine withdrawal. The reduction treatment of morphine was also taken up, in which no drug treatment was used, but the morphine gradually but surely reduced. A short experimentation followed with the use of codeine to relieve the symptoms of withdrawal of morphine. All these separate tests required time in a small ward, with but few patients at any one time. But with strict control, perfectly accurate estimates were obtained. The symptoms were divided into four classes: (1) the gastrointestinal group, with nausea, vomiting, abdominal cramps and diarrhea; (2) muscular discomfort with aches and twitching; (3) restlessness, mental and physical, and increased psychomotor activity; (4) prostration, with subjective and objective weakness.

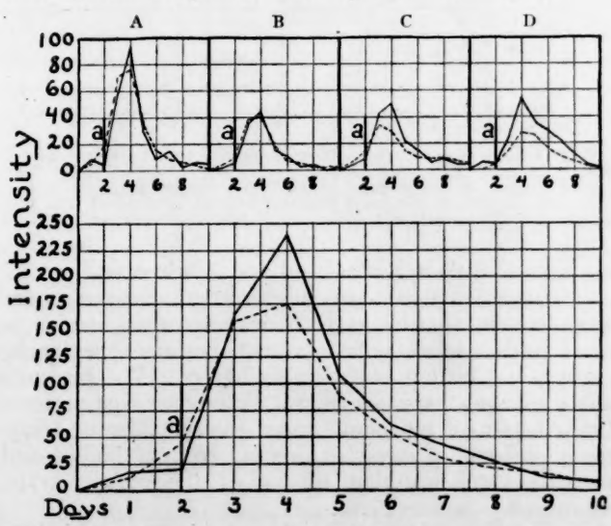

Chart 3.—Above, comparison of four major withdrawal symptom groups under scopolamine; solid line, scopolamine; broken line, control. Below, composite graph; solid line, scopolamine twenty-five cases; broken line, control twenty-five cases, average of 100 controls.

The accuracy of the observations was carefully checked, one man alone judging the symptoms and another man deciding which patient should be a control and which should receive the treatment under observation. The nurses in charge did not know what treatment was being given.

The results of the treatment show that the gastrointestinal symptoms under Narcosan are much increased over the controls; muscular discomfort with aches and

twitching comes earlier with the use of Narcosan, rises higher, and then diminishes equally with the others; the restlessness is practically the same with Narcosan as in the controls; the prostration during the entire treatment is slightly more noticeable under Narcosan than in the controls.

The next drug to be tried as a treatment was atropine. It is evident from the curves that those receiving atropine show about the same intensity of symptoms as the controls but that the recovery from their symptoms is prolonged, and that they recovered more slowly from their symptoms under atropine than did the controls. The gastro-intestinal reaction is less severe under atropine; the muscular discomfort is not quite as severe but lasts distinctly longer; restlessness, however, is more intense under atropine than in the controls, and prostration occurs more quickly, and, while not more prolonged, is slightly more intense.

Under scopolamine it is evident that patients suffer more than the controls; their suffering does not begin as soon, it rises to its climax at the end of forty-eight hours of treatment, and the gastro-intestinal symptoms are markedly increased under the scopolamine. Muscular discomfort is practically the same as in the

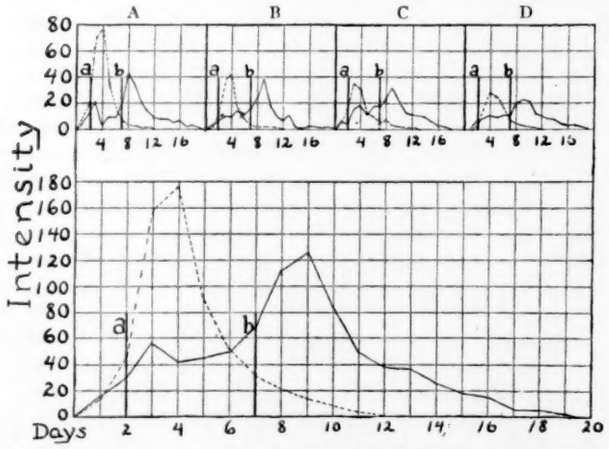

Chart 4.—Above, comparison of four major withdrawal symptom groups during seven-day reduction; solid line, seven-day reduction; broken line, control. Below, composite graph; solid line, seven day reduction twenty-five cases; broken line, control twenty-five cases, average of 100 controls. Vertical line marked *b* shows end of seven-day reduction.

controls, and their restlessness and delirium and mental and physical activity are enormously increased under scopolamine, as well as is their prostration, which is more intense in all periods of the treatment, beginning earlier, and lasting considerably longer. These results agree with our previous clinical experience, that patients being taken off morphine under the scopolamine treatment suffer for days, or weeks, from a bodily and mental exhaustion that is one of the most marked features of the treatment.

A seven-day reduction of morphine was tried in which the patients, as compared with the controls, suffered materially less. But while their suffering was less intense it was more prolonged, and at the end of the seven days, when they were cut off their drug, the withdrawal symptoms flared up acutely, but with marked diminution in intensity in all patients. The patients, however, were less easy to care for; they were irritable, mean, more quarrelsome, and more difficult in every way to manage. It is interesting that after the morphine was cut off from these patients, as the curve shows, they still had about seventy-two hours of increase of symptoms.

In a fourteen-day reduction, it is noticeable that the gastro-intestinal symptoms are reduced to a minimum; the muscular discomfort, however, increased, with a rising curve toward the day on which morphine ceased to be given, at the end of two weeks, and then flared up for forty-eight hours and rapidly diminished; restlessness was diminished in comparison with the controls, but in a rising curve, until it also disappeared; prostration shows a similar curve, but to a less degree.

The next method of treatment was an endeavor to ascertain to what extent codeine would control the withdrawal symptoms of morphine. Our clinical experience had taught us that codeine does control them and that it is so rapidly discharged from the body by the kidneys that it is not stored up as long as morphine, nor does it possess the narcotic value to the human organism that morphine does. It produces sleep, it alleviates pain to a marked degree, but that curious narcotic value it does not possess, and codeine habits are exceedingly rare. In 1,700 patients in private practice, treated for many different narcotic addictions to the various habit forming drugs of the opium group and the hypnotic chemical group, it was found that only ten of them were addicted to codeine, and these had acquired it through their endeavor to alleviate pain.

In those receiving rapid reduction with codeine, the curves show that at the end of the week, when the morphine was cut off, there were the regular three days of increase of symptoms after the codeine was also cut off, but these symptoms do not rise as high as do those in the fourteen-day reduction, nor as high even as the symptoms after a seven-day reduction.

Since these experiments have been carried on at Bellevue, it has been found in private practice that if the codeine is continued a few days beyond the morphine and is tapered off rather rapidly, that is, in four or five days, the symptoms are reduced to a minimum, although there is a sense of irritability and restlessness. Even that is of little consequence compared with the usual withdrawal symptoms. In other words, the withdrawal symptoms do not go beyond the intensity of the disagreeable restlessness produced by the cutting off of any narcotic. The gastro-intestinal symptoms disappear, the muscular discomfort is at a minimum, the restlessness is the most marked of the symptoms, but that soon ceases. It is evident, therefore, that codeine is the only drug we have as yet found that really modifies materially and successfully the withdrawal symptoms of morphine.

The best method of giving this treatment is to calculate the amount of morphine, in terms of Magendie's solution, that a patient is taking in twenty-four hours, and then for a ten-day reduction, diminish the morphine each day about one-tenth. As the morphine is best given at four hour intervals, and there are six doses a day, the total daily amount is again divided by 6, and the amount of reduction is easily calculated in the number of minims of Magendie's solution. For instance, if the patient is taking 4 grains (0.26 Gm.) a day the equivalent to 120 minims a day of Magendie's solution, he is taking 20 minims every four hours; if he is to be reduced 12 minims a day, he is reduced each day at each four hour dose 2 minims of his Magendie's solution; in this way in the ten days his Magendie's solution is brought down to zero.

But at the same time that his morphine is reduced, the codeine is increased from the second day beginning at ½ grain (0.03 Gm.) every four hours the first codeine day; then 1 grain (0.065 Gm.) every four

hours the second day; then 3 grains (0.2 Gm.) every four hours the third day; 4 grains (0.26 Gm.) given every four hours the fourth day, and 5 grains (0.3 Gm.) every four hours the fifth day, continued at 5 grains every four hours until three days after the last dose of morphine has been given, when it is tapered off as rapidly as the discomfort of the patient permits. It is wise to use the codeine phosphate because of its greater solubility, and if the codeine solution is made up in the same form as Magendie's solution it is easily accessible,

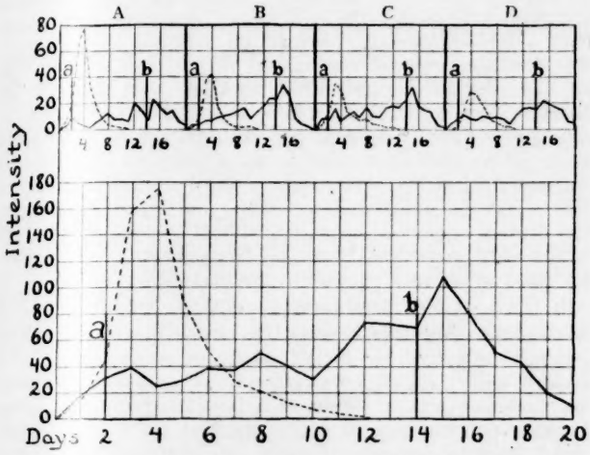

Chart 5.—Above, comparison of four major withdrawal symptom groups during fourteen-day reduction; solid line, fourteen-day reduction; broken line, control. Below, composite graph; solid line, fourteen day reduction twenty-five cases; broken line, control twenty-five cases. Vertical line marked *b* shows end of fourteen-day reduction.

and desired amounts can be given every four hours simultaneously in the same syringe as the Magendie's solution. In this way the patient does not know when the morphine ceases to be given to him. If this amount of codeine is not sufficient, extra doses of codeine can be given without harm to the patient or to his reduction treatment. This large amount of codeine is apt to be very constipating, and the patients should receive the amount of cathartic necessary to keep their bowels in good action; severe purging is not necessary under this form of treatment, and it is apt to irritate the gastro-intestinal tract. Of course, the patient's intestinal tract should be thoroughly cleared out before the treatment is begun; it is also wise to test out the patient for the first twenty-four or forty-eight hours of treatment with the amount of morphine that the patient says he is taking, to see whether or not he is comfortable.

The advantage of this codeine and morphine treatment is that since the patients suffer so little there is no occasion for deception, there is no question of a defense reaction for fear of suffering, they get away from their drug without the irritability and fear of suffering that the abrupt methods and old forms of treatment gave them, and they are quite manageable.

Of course if one is dealing with patients who do not want to recover, who do not want to be taken off, if one is dealing with a large mass of psychopathic addicts with inadequate personalities, who make no attempt at reconstruction, one will encounter every sort of deception and every known form of resistance and lack of cooperation. But in private practice with those who have been caught in the toils of the narcotic habit through legitimate medication or through the existence of pain, this treatment is easily administered in a hospital, and the patients can easily be taken off their narcotic.

All morphine patients, after they are once off, should be reconstructed physically as well as psychologically, and the best method of accomplishing this is through physical exertion, exercise or work. While building up into good physical condition, the sooner they are occupied with the rearrangement of their psychologic distortions, the better and the more quickly they will be able to face existence cheerfully without their drug.

Sleep comes to addicts gradually during their period of treatment, and in the restless period of the few days as their morphine is cut off, or their codeine diminished, hypnotics are very difficult to administer. Sodium amytal and practically all members of the barbituric acid group, if given in sufficient amounts really to make patients sleep and to influence at all the withdrawal symptoms, must be given in amounts that poison them, and in the endeavors to obtain sleep for these patients the poisoning from the various hypnotics given, even to the point of delirium, has been a noticeable feature. It is harmful, in my opinion, to push hypnotics as far as this; it only adds to the poisoning of the patient, and does not relieve the withdrawal symptoms but adds to the difficulties of handling the situation.

Chloral, from 25 to 30 grains (1.6 to 2 Gm.), with codeine, 1 or 2 grains (0.065 or 0.13 Gm.), tincture of hyoscyamus, 30 minims (2 cc.), is a very useful hypnotic for these patients, but even this cannot be continued too long. Patients must be made to fight out their lack of sleep by endeavoring to read, or by taking hot baths, or applying hot packs, all of which will relax them. They gradually obtain more and more sleep each night and if they can be made to take tonic baths in the day time, or physical exercise, they can, through exertion, obtain their sleep more quickly than otherwise.

The question is often asked: What can be done for the inadequate group of personalities that form the

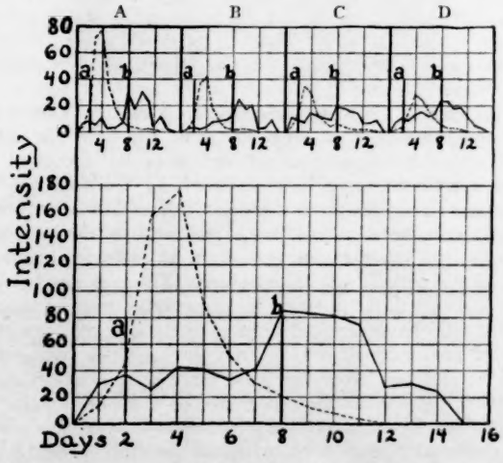

Chart 6.—Above, comparison of four major withdrawal symptom groups under rapid reduction with codeine; solid line, rapid reduction with codeine; broken line, control. Below, composite graph; solid line, rapid reduction with codeine twenty-five cases; broken line, control twenty-five cases. Vertical line marked *b* shows end of treatment by means of rapid reduction with codeine.

ever recurrent narcotic addicts in the penal institutions? It is only through forced confinement, learning some trade and working at some definite occupation that these patients can be trained and reconstructed. Occupational therapy in forced confinement is the best solution. This will slowly regenerate a larger number than can otherwise be restored. If at the same time an

endeavor is made to take these patients individually to reconstruct their distorted mentalities and twisted views of life, a great deal can be done to diminish their number. But this is a problem that should be undertaken by the state, just as the state today undertakes the care of the mentally diseased. These individuals, to be regenerated, should be treated as unable to lead a normal existence, not as if they were in a boarding house for permanent care but as though they were mentally ill and must be reconsrtucted through persistent treatment.

It is at present hopeless to attempt to take care of certain individuals among drug and alcoholic addicts without the power to deprive them of their liberty and force them through institutional care and reconstruction to reorganize themselves and their mentalities. This at present the law does not permit; but, until it is done, many inadequate personalities will continue to seek their peace of mind in narcotic addiction.

43 East Seventy-Second Street.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. LIGHT AND LAMBERT

DR. WILLIAM H. MAYER, Pittsburgh: The neuropsychiatrist views the morphine addict much as many other things that happen in his experience. The failure of individuals to succeed in the matter of spiritual comfort and to be content with the reality is relative. I refer to this because of the type of case mentioned by Dr. Light, particularly the individual who does not look forward to excess but is content with a small dose of morphine to assist in his adjustment. As has been clearly shown in a former study, to which Dr. Lambert has also referred, the question of addiction disease is a matter of conjecture. I believe that all the proof is that there is no addiction disease. I intended to take issue with Dr. Lambert at times when he compared alcoholic and morphine addiction as a common type. Our group insists on making discriminations a little finer, although, in the main, one must agree with the broad principle that reality and flight therefrom governs both habits. One practically never sees the stage of tolerance in alcoholism that unquestionably occurs in a morphine addition. It is possible that the somatic changes in alcoholism which are not seen in morphinism are responsible for the failure of elimination and also explain lowering of tolerance in the alcoholic addict, which is never seen in the morphine addict. What Dr. Lambert said concerning treatment is true. I went through the narcosan period and there became acquainted with the fact that withdrawal symptoms were largely emotional reactions, and suggestion controlled many of the cases. Actual collapse occurred in some cases, but I am willing to believe that similar collapses occurred from other causes than from physiologic changes pursuant to the withdrawal of morphine. There is another group, which includes those suffering from periodic pains of true tabes dorsalis, who have received arsphenamine and yet have obscure crises of pain relieved only by morphine. Once removed from the habit and free from the pain, there was no effort made to take the drug. With the recurrence of the pain, another cycle of morphine habit was begun. A considerable percentage of morphine addicts examined by spinal puncture give interesting observations to support the belief that this group exists. As Dr. Light points out, these individuals become enamored with the feeling of euphoria and proceed to use the drug in order not only to be free from pain but to enjoy a state of lethargy; but this is only a specter, and the moral collapse that occurs is due to the social experiences surrounding the drug habit.

DR. G. WILSE ROBINSON, Kansas City, Mo.: I am glad the authors have included in this discussion other forms of drug addictions besides morphinism and alcoholism. There are various reasons why people use alcohol, narcotics and sedative drugs excessively. The matter of maladjustment has been mentioned. The majority of those who use drugs and alcohol to excess do not meet well the realities of life. Many of those who use alcohol excessively are subject to attacks of mental depression—a mild form of manic depressive psychosis. We all, more or less, crave the experiences, sensations and the thoughts of our childhood; during our childhood experiences, we have autisms and fantastic thoughts; we have ideas that carry us beyond reality. We crave that in our adult life. Those people, especially introverts, who do not meet realities well seek that situation by morphinism and alcoholism; it gives them the autism and fantastic thoughts of childhood and helps them to banish the realities of life, which may be very painful to them. Morphine and alcohol are sedatives that act especially on the small pyramidal cells of the cerebral cortex; they alter the thought processes. The urea preparations, of which barbital and phenobarbital are the best known and most widely used, have a different action. They act on the brain stem and midbrain, on the thalamic centers and the thalamic motor areas. In 1909, Dr. Lambert published what has been known as the Lambert treatment. I tried it out and the results were so satisfactory that I have used the treatment regularly since that time. I have tried many other forms of treatment for alcoholism and morphinism but have never been able to find a treatment that works so well. I have used it on patients of all ages and degrees of physical condition, without harmful effect. Aged patients and those who have used large quantities of morphine for many years respond well to this treatment.

DR. ALEXANDER LAMBERT, New York: I would like to mention the difference between the action of codeine and the action of morphine for the alleviation of pain. Codeine, if it is used with the analgesics, I mean acetphenetidin and either acetylsalicylic acid or sodium salicylate, and then using sodium bicarbonate with them, is one of the best forms of medication that I know to stop pain. Patients can be carried through their various forms of crises without the use of morphine and they do not acquire a habit with codeine. In about 1,700 cases of all kinds of habits, I found that in only ten of those patients was codeine used as a habit per se with which to relieve the pain. It does not have the narcotic value that morphine has. It is eliminated rapidly by the kidneys. It is methyl morphine and does not combine with the nervous tissues as the ethyl radical does. It is a most useful drug, especially combined with those analgesics, and it should not be included in the habit-forming drugs. It is because it comes from opium that it is so classed. That is the lay point of view, which is difficult to change. But it does not have that peculiar narcotic value and can be used with the greatest benefit in combination and in tiny doses or in big doses, as the case may be, depending on the individual. The treatment Dr. Robinson mentioned is useful if the staff can be trained to give it definitely and not make mistakes. It is full of details. If understood well and manipulated well, with intelligent nurses that one can hold and keep and train in one's own institution, it can be manipulated better than anything else I know. It has given me excellent results. But if all these conditions cannot be obtained, I have found that the reduction with codeine seems to answer the same purpose and it can be given by a routine hospital treatment. It seems at present to be the best available.

The Revival of Heliotherapy.—Worship of the sun was known to the ancients long before the Christian era and was practiced not only by the barbarian races but by cultured Egypt. We are told that the father-in-law of Tutankhamen gave up other gods for the worship of the Sungod Ra and built a new city and temples to his honor. The Greeks and Romans, while not worshipping the sun, understood its health-giving properties. Hippocrates practiced heliotherapy on the island of Cos in the fourth century B. C., and from 130 to 200 A. D. it was practiced at Rome by Celsus and Galen. Cicero has described for us the solaria built at the villas outside Rome. The solarium was usually a flat terrace or roof designed to trap the maximum of sunshine. The Druids in our own islands were also sun worshipers. The cult of the sun was apparently regarded as pagan, for with the advent of the Christian era sun worship fell into abeyance. It is only comparatively recently that its value has again been recognized.—MacCarvill, Patrick: Ultraviolet Light, X-Rays and Radium as Therapeutic Agents, *Irish J. M. Sc.*, February, 1931.

BLADDER DIVERTICULA

WITH ESPECIAL REFERENCE TO THEIR SURGICAL REMOVAL *

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AND
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CHICAGO

A diverticulum of the bladder is a cavity in closest relation to it produced by a localized dilatation of its wall. Diverticula are characterized by a definitely circumscribed opening which represents the connection between the cavity and the bladder, and by a mucous lining which is continuous with that of the bladder.

Vesical diverticula have been classified into various groups: congenital and acquired, true and false, solitary and multiple, and traction diverticula. They have been divided into those of the dome, of the lateral walls, and of the floor of the bladder.

Some authors have grouped these sacs as congenital and acquired, basing the division on the layers present. Klebs,[1] Englisch[2] and Rokitansky[3] stated that the presence of all layers of the bladder wall designated a diverticulum of congenital origin, while in the acquired type there was merely a prolapse of the mucosa between the muscle fibers. Hinman[4] states that the classification of Englisch and Rathbun[5] into true and false diverticula cannot be made, and he believes that they are all acquired. Kneise[6] says that the overwhelming majority are surely not of congenital origin, and that at most the anlage for their formation is present in embryonic life. He stresses the fact that the weakness in the muscularis is a site of predilection for the formation of diverticula. Thomas states that at least 80 per cent are acquired through some obstructive process. Opposing this opinion, Lower considers most of them congenital.

Embryologic studies by Keibel,[7] Reichel[8] and Retterer[9] afford at the most only suggestive hypotheses. The experimental work of Rose showed that diverticula are congenital to the extent that a loose fibrous pathway must be present through the bladder wall before the acquired factor, namely, a raised intracystic pressure, can herniate the mucosa. Lowsley and Gutierrez[10] state that "it would seem, therefore, that there is a possibility that vesical diverticula are primarily congenital, although there is a greater likelihood of their manifestation during late adult life, which may be due to the occurrence of factors inducing abnormal tension within the bladder."

Herbst and his collaborators, as a result of numerous experiments on dogs, state that "increased intracystic pressure during micturition such as may be produced by spasmodic contractions of the detrusor muscle due to infection or other causes of increased muscular irritability is a third factor which evidently plays an important rôle in the formation of diverticula." They were apparently first to emphasize the importance of infection in the production of these sacs in persons in whom obstruction alone had not done so.

Most diverticula are acquired, but they occur at a point of congenital weakness of the bladder wall, through which herniation may occur if one or both of the acquired factors operate. The openings of most diverticula are located in the vicinity of the ureteral orifices. Hinman found the openings of 98 of a series of 135 solitary diverticula and 25 of a group of 28 multiple sacs in this neighborhood. Diverticula not infrequently occur at the site of the urachus. Those involving the posterior wall of the bladder are uncommon, but those of the anterior wall are rarest of all.

Diverticula vary in size from one containing but a few cubic centimeters to cavities containing several cubic decimeters, and they may greatly exceed the size of the bladder itself. Potherat[11] reported a case in which the diverticulum contained 5,500 cc. and Warren-Green[12] one containing 3,700 cc. The size of the orifice varies considerably and bears no relation to the size of the sac itself. Formerly, it was taught that the orifice of a congenital diverticulum had definite characteristics but this does not seem to be true.

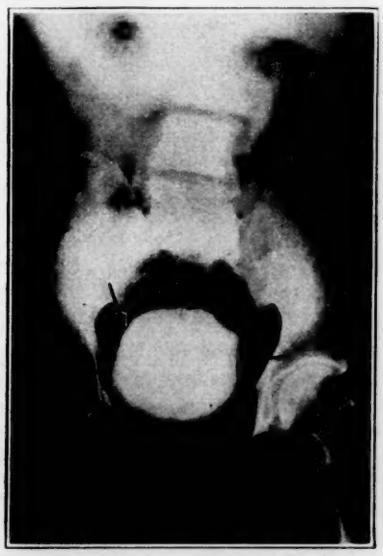

Fig. 1 (case 1).—Anteroposterior cystogram showing indistinctly presence of diverticula.

Vesical diverticula may have various shapes; those most commonly seen are round, ovoid, finger-like or bizarre, depending often on conglutination between the sac and the surrounding structures. They are usually solitary, but 10 per cent of cases reported presented multiple diverticula. As many as seven have been recognized in one patient. The two sides of the bladder are about equally affected. In 88 per cent of vesical diverticula observed in men, the bladder was trabeculated, evidencing overwork from an obstructive process.

The relation of the surrounding structures to the diverticulum is extremely important from the point of view of surgical removal. Adhesions may bind them

* From the Michael Reese Hospital and the Edward Hines, Jr., Hospital.

1. Klebs, cited by Englisch (footnote 2).
2. Englisch, J.: Centralbl. f. klin. Chir., 1894, p. 658.
3. Rokitansky, C.: Lehrbuch der pathologische Anatomie **3**: 48, 1855.
4. Hinman, Frank: Surg. Gynec. Obst. **29**: 150-174 (Aug.) 1929.
5. Rathbun, N. P.: Diverticulum of Bladder Containing Large Calculus, J. Urol. **12**: 181 (Sept.) 1924.
6. Kneise, O., and Schulze, R.: Ztschr. f. urol. Chir. **10**: 461 (July) 1922.
7. Keibel, Franz K. J.: Arch. f. Anat. u. Physiol., 1898, cited by Paschkis, Robert: Handbuch der Urologie, Vienna, Julius Springer, 1928, p. 45.
8. Reichel, Frederick: Die Entwicklung der Harnblase und Harnrohre, Würzburg, Stahel, 1893.
9. Retterer, Edward, cited by Keibel (footnote 7).
10. Lowsley, O. S., and Gutierriez, Robert: Operative Intervention for the Relief of Diverticulum of the Urinary Bladder, J. Urol. **19**: 459 (April) 1928.
11. Potherat, E.: Proc. verb., tenth session of French Urological Association, Paris **10**: 412-418, 1907.
12. Warren-Green, cited by Targett, J. H.: Brit. M. J., 1893.

to important intra-abdominal organs or to large blood vessels.

The ureter may empty into the diverticulum, as in one of our cases, but this is a rare occurrence and a special technic is required for the removal of such a sac. Hinman in 1919 reported but fourteen cases from the literature, including two which he himself had observed.

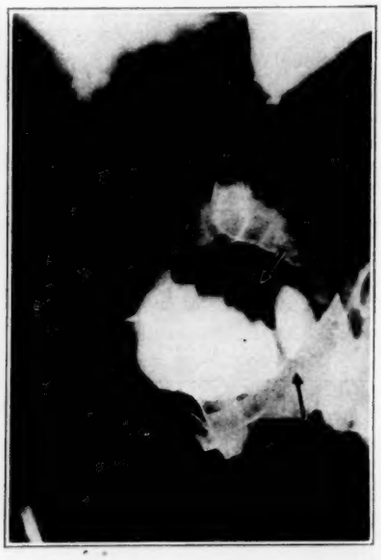

Fig. 2 (case 1).—Lateral view of same case showing moderate sized bilateral diverticula.

The conglutination between the ureter and the diverticulum results from the increase in size of the diverticulum. The ureter is pulled in its long direction and its lumen is narrowed or markedly displaced. As the diverticulum enlarges, the ureteral orifice becomes farther away from the opening of the diverticulum.

PATHOLOGY

The walls of the diverticula in the series here reported uniformly show all layers of the bladder wall, however, with certain changes which may best be described by quoting the pathologist's report of typical cases: "In general, the sections showed the following changes: Some of the sections still showed transitional lining cells, which in some fields were apparently hyperplastic. A few sections showed metaplasia of the lining cells. The mucosa and submucosa as seen in most of the slides were infiltrated by lymphocytes, endothelial cells and occasional polymorphonuclear leukocytes and a few plasma cells. There was a varying amount of connective tissue combined with a new formation of small blood vessels. Other sections showed islets of muscle fibers in the walls of the diverticulum. Some of these fibers were atrophic."

The thickness of the wall depends almost entirely on the degree of inflammation present. Sacs which have been the site of infection are much thicker than those in which the inflammatory reaction has been mild. However, as a result of stretching, the walls may become quite thin and in fact may perforate. This thinning is evidenced by flattening of the lining epithelium of the mucosa.

The muscular coats may become greatly thinned and in places entirely lacking or merely show microscopically the remnants of muscle fibers. This extreme thinning of the musculature is especially noted in the fundus of the diverticulum.

The changes in the epithelial lining are due partly to the stagnation of urine; the cells become saturated and subsequently loosened.

Leukoplakia of the lining of a diverticulum has been reported by Blum.[13]

Infection of a vesical diverticulum deserves special emphasis as usually the first symptoms manifest themselves when infection has occurred. It is readily seen that the physical characteristics of diverticula make them a site of predilection for infection. The practical impossibility of overcoming or curing the infection, once it has taken place, is obvious for the same reason; viz., the position of the diverticulum, its relative narrowness, and the contractions of the orifice.

The source of the infecting bacteria is not at all easy to determine, as is the case in many urinary infections. Likely sources are the prostate, urethra, rectum and instrumentation. Hematogenous infections occur. The diverticulum may become infected from the bladder or vice versa. Englisch and others have reported isolated infection of a diverticulum. This observation, we believe, would be very difficult to prove, and if this phenomenon does occur, it is purely of academic interest. Severe infections may occur with phlegmonous processes in the wall of the diverticulum, leading to perforation into the peridiverticular tissues and occasionally into the peritoneum (Englisch).

Chronic infection always produces an inflammatory reaction in the neighborhood of a sac, and produces

Fig. 3 (case 2).—Anteroposterior cystogram showing diverticulum into which right ureter emptied.

adhesions of varying grades and character, later becoming very fibrous.

Associated is the presence of stone or tumor within the diverticulum, instances of which are not uncommon. We have observed one case in which the stone projected from the diverticulum for approximately 2.5 cm., and

13. Blum, V.: Chirurgische Pathologie und Therapie der Harnblase Divertikel, Thieme, 1919.

the part within the sac was somewhat larger than the protruding portion. Similar stones have been diagnosed as encrusted carcinomas of the bladder. The presence of stones complicates the situation because they occur in the more severely infected cases. Occasionally a decubitus ulcer of the wall ensues with the increased possibility of perforation, and usually more marked adhesions are present. Tumors that have been found

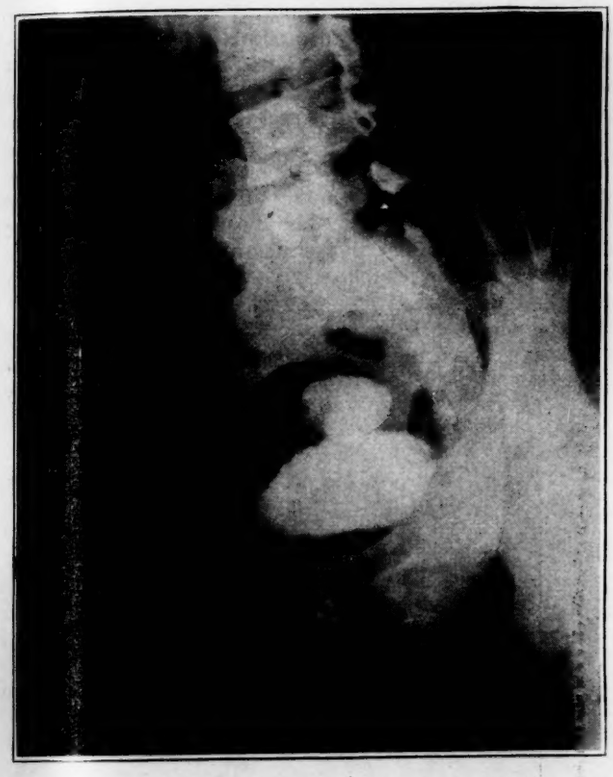

Fig. 4 (case 2).—Lateral view of same case showing relative size of diverticulum.

within diverticula are angioma, papilloma, sarcoma and carcinoma.

The symptoms of vesical diverticula are not characteristic and usually appear merely as disturbances of urination depending on the associated pathologic changes as they have been outlined. They are usually symptomless unless infected.

Not infrequently, functional disturbances of micturition occur because of changes in the musculature of a large diverticulum.

Dysuria of an intermittent course for a long period of years is a suggestive symptom. The presence of a diverticulum may be suspected if, after the bladder has apparently been washed clean, definite turbidity of the irrigating fluid suddenly appears. The necessity of emptying the bladder twice in a short time may be regarded as a suggestive symptom. Retention of urine can occur from a diverticulum compressing the vesical neck.

Bleeding as a result of infection, ulcer, stone or tumor within a diverticulum may be noted.

Strangury, dribbling, incontinence and a sensation of not having emptied the bladder may be present but have nothing characteristic in their occurrence, associated symptoms or sequence. Occasionally a patient will state that he can void only when assuming unusual positions or with the assistance of external pressure. This phenomenon is likewise not characteristic, as it may occur in the presence of vesical stone or prostatic hyperplasia in the absence of a diverticulum.

The diagnosis of bladder diverticula cannot be made by obtaining a characteristic history of the condition, as this does not exist. The subjective symptoms are so indefinite as to be entirely untrustworthy.

The diagnosis is properly made by cystoscopy and is confirmed and augmented by cystograms. The orifice of the diverticulum is readily identified and its relative location can be determined by cystoscopy alone. Occasionally the beak of the cystoscope can be introduced into the sac itself and all characteristics of the cavity can be noted. The passage of a shadowgraph catheter into the sac is of great value at times, and often a considerable length of the catheter can be coiled in the diverticulum. Roentgenographic studies then made will give an excellent impression of the size and relations of the sac. A series of cystograms affords the best method of accurate diagnosis, especially in those cases in which cystoscopy is impossible or difficult. The details of the technic of cystography will not be here described, but the complete technic as described by Blanc and Negro [14] will produce valuable roentgenograms which will afford accurate diagnosis of the size, shape and position of the sac. Intravenous urography will undoubtedly disclose many unsuspected vesical diverticula and should be especially valuable in examining cases with infection in which instrumentation may be dangerous. Roentgen exposures of the bladder area should be made in the lateral and semilateral as well as the supine position. Stereoscopic films are often of additional value.

TREATMENT

Nonsurgical procedures are of little value in the treatment of diverticula and should be employed only

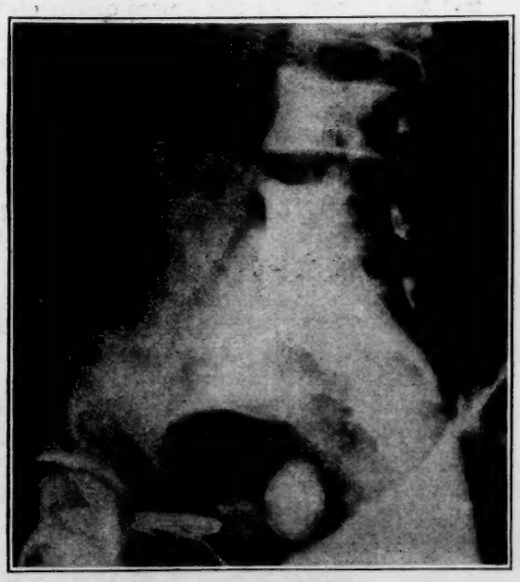

Fig. 5 (case 3).—Lateral view of bladder showing coiled shadowgraph catheter in diverticulum, stone in bladder lying horizontally and large stone in lowest portion of urteter lying vertically.

when operative intervention is definitely contraindicated by the poor general status of the patient, in which cases the prognosis of radical resection of the diverticulum offers too great a risk.

Judd [15] states that "those who have had the most experience with these cases seem to be unanimous in

14. Blanc and Negro: La cystographie, Paris, Masson & Cie, 1926.
15. Judd, E. S.: Diverticula of the Bladder, Ann. Surg. 68: 398 (Sept.) 1918.

the feeling that the proper treatment for any of these diverticula is complete excision of the sac, and that any treatment less radical will not be satisfactory. Our experience bears this out."

OPERATIVE TECHNIC

Operation for diverticulum of the bladder in those cases in which operation is definitely not contraindicated

Fig. 6 (case 3).—Anteroposterior cystogram of same case showing diverticulum. Both stones are obscured by filling fluid.

should include the complete surgical excision of the sac or sacs and also removal of the source of the obstruction, usually at a later period, depending on the status of the patient and the nature of the obstructing process.

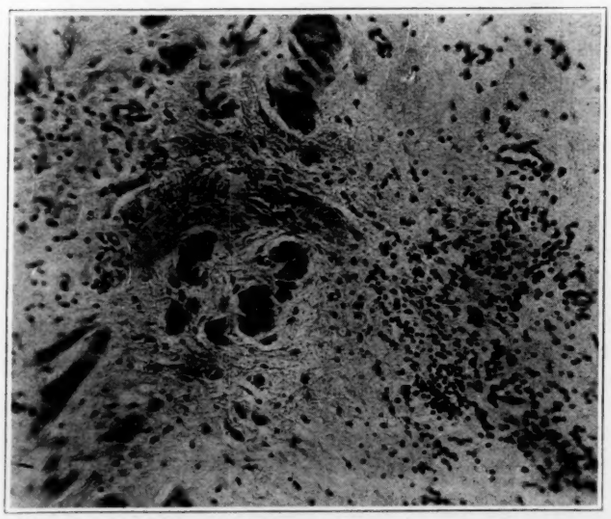

Fig. 7.—Section showing isles of muscle fibers surrounded by connective tissue. One part shows a rather dense infiltration of lymphocytes, very few endothelial cells and an occasional leukocyte.

The surgeon operating on a vesical diverticulum should have definite knowledge of all possible circumstances regarding the particular case at hand. We refer particularly to the number, size, location and relations of the diverticulum. Even then, it may be necessary to modify the intended technic on account of circumstances first manifesting themselves during the course of the operation. Without attempting to discuss the merits of the various methods employed, we have been uniformly successful in completely resecting the sac in all cases attempted by the following technic, with necessary modifications, depending on the individual peculiarities of the case.

Spinal anesthesia has been used in the more recent cases of the series. The relaxation obtained by this method of anesthesia, and the collapse of the intestines, making it unnecessary to hold them back forcibly by retractors or other means, combined with the more moderate type of the patient's respirations, as compared with those during any method of inhalation anesthesia, have contributed in our opinion to the ease and relative safety of the operation.

A moderate to extreme Trendelenburg position was used in all cases. Preliminary drainage of the bladder by catheter or suprapubic tube has not been used except in cases of prostatic enlargement and only for the same reason as it is indicated in prostatic hypertrophy. We feel that Judd's statement is accurate: "Drainage of the bladder even as a preliminary step will seldom help enough to warrant its being done." The bladder is

Fig. 8.—Metaplasia of lining cells. The cells are typically squamous in type.

filled with sterile water or a mild antiseptic solution, such as mercuric oxycyanide, 1 : 10,000.

A midline incision of ample length is made down through the bladder as for cystotomy. The peritoneum is reflected upward with the gauze-covered finger as far as necessary for the particular case. In some instances we have found it desirable to do a complete extraperitonealization of the bladder. This has been accomplished in some instances by cutting and doubly ligating the urachus and then bluntly dissecting the peritoneum from the bladder wall. In others it was necessary to follow Voelcker's technic of extraperitonealization.

After the peritoneum has been freed from the bladder by finger dissection, the diverticulum, still filled with water and the bladder still unopened, is freed as far as possible from the perivesical fat and other structures. This part of the operation, we believe, is of prime importance, and the ease or difficulty with which it is accomplished depends on the extent and degree of adhesions surrounding the sac. This step is particularly difficult if the sac is thick walled and if there is a marked degree of infection and organized fibrous tissue present. Haste at this time is not advantageous. Cases

in which the entire sac can thus be freed extravesically are those in which the adhesions are few or easily detachable and are suitable for extravesical resection. The bladder is then emptied by the catheter left in place. The mouth of the diverticulum, including a cuff of normal bladder wall, is circumcised and the sac removed in toto. The bladder can then be explored by the finger and if no further operation is contemplated, such as prostatectomy or resection of the vesical neck, the bladder may be closed.

This is done in the usual manner of closure used after prostatectomy, namely, closure by two layers of sutures, care being taken to invert the mucosa. A large drain is left as high as possible in the bladder. Drainage is left to the site of the fundus of the sac that has been removed. This is of great importance and should be adequate. We have found large Penrose tubes or bullet drains satisfactory. The space of Retzius is likewise drained. These drains are left in for at least four days.

Diverticula that are markedly adherent to the surrounding structures and cannot be freed in their entirety require a slightly different method of approach. Most of our cases belong to this class and the technic used was as follows:

All steps are similar to those already described, including the freeing of the sac, which in this type of diverticulum cannot be entirely accomplished extravesically. Therefore the bladder is emptied as before and opened between Allis clamps. The orifice of the diverticulum is visualized and stretched with 8-inch forceps so as to admit the index finger of the left hand. Then with the left index finger within the diverticulum and one or two fingers of the right hand outside the bladder, the sac in most cases can be entirely

Fig. 9.—Squamous cells, moderate fibrosis of submucosa and infiltration of lymphocytes, endothelial cells and occasional leukocytes.

freed. It then may be inverted and resected intravesically or it may be removed extravesically, as has been described. In certain instances, even with this technic, it has not been possible to free the fundus of the sac, either on account of its depth or because of the extreme degree of its adhesions. In these cases we have used a modification of the technic described by Marion and Lowsley and Gutierrez; namely, making an incision to the neck of the sac and also into the sac in its long axis so that the adherent portion is made readily accessible. We have found it necessary to incise the sac in its long axis, so that only from three-fourths to an inch remained unopened, and this small fundus was then separated from the surrounding tissue. Closure of this wound in the bladder is done as has been described and the drainage is the

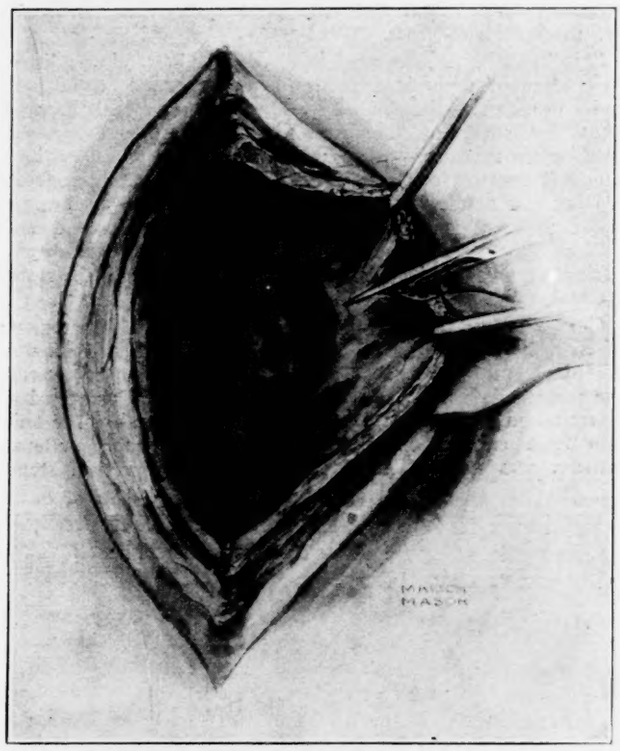

Fig. 10.—Incision of bladder wall to neck of diverticulum.

same. In one case into which the orifice of the ureter opened, the method described by Hugh Young [16] was followed minutely and effected a complete cure. The details of the technic will not be repeated here.

In cases in which the diverticulum involves the dome of the bladder and when the peritoneum cannot be stripped from the bladder wall or from the diverticulum, it is necessary to open the peritoneum before incising the bladder. Then after making the repair of the peritoneum by uniting the two leaves together, or suturing them low down on the posterior wall of the bladder, the resection of the diverticulum usually proceeds readily, unless the diverticulum is of excessive size.

During the enucleation of a diverticulum the vas deferens or the ureter or both may be exposed and great care must be used to preserve their integrity. Occasionally the sac may be adherent to important blood vessels and may not be detachable without grave risk of injury to them. In such cases it may be necessary to leave the fundus of the diverticulum in situ; this may be done without jeopardizing the success of the operation.

REPORT OF CASES

The following cases are typical of the different varieties encountered in a series of fourteen:

CASE 1.—N. W., a man, aged 38, had passed gravel and had been operated on for vesical stone at another hospital. He

16. Young: Practice of Urology, Philadelphia, W. B. Saunders Company, 1926.

complained of burning and difficult urination. This case is rather unusual as the source of the obstructive process was undoubtedly stricture of the urethra, following traumatic rupture of the urethra at the age of 13. Cystoscopic examination showed the opening of a diverticulum above and medial to each ureteral orifice. Some cystitis was present. Both ureteral orifices were normal except for partaking in the general inflammation present, and catheters passed readily to each pelvis. Roentgenographic examination—anteroposterior cystograms—did not reveal either diverticulum seen at cystoscopy, but lateral and semilateral cystograms visualized two moderate sized sacs.

CASE 2.—M. F., a man, aged 40, entered the hospital on a litter on account of multiple arthritis of undetermined origin, and under routine examination was referred to the urologic department for study of the genito-urinary tract. Cystoscopic examination revealed a moderate grade of generalized cystitis. The left ureteral orifice was normal and the right ureteral opening was not located, but in the neighborhood was seen an orifice apparently 0.5 cm. wide, opening into a large diverticulum. Roentgenographic observation showed a large diverticulum on the right side of the bladder. At operation the right ureteral orifice was found in the diverticulum.

CASE 3.—H., a man, aged 44, entered the hospital on account of difficulty and burning on urination. He had had sounds passed several years before for strictures in the membranous and penile urethra. Cystoscopy revealed the large orifice of a diverticulum lateral and distal to the right ureteral orifice and into it a considerable length of a shadowgraph ureteral catheter was coiled. There was seen a large vesical stone

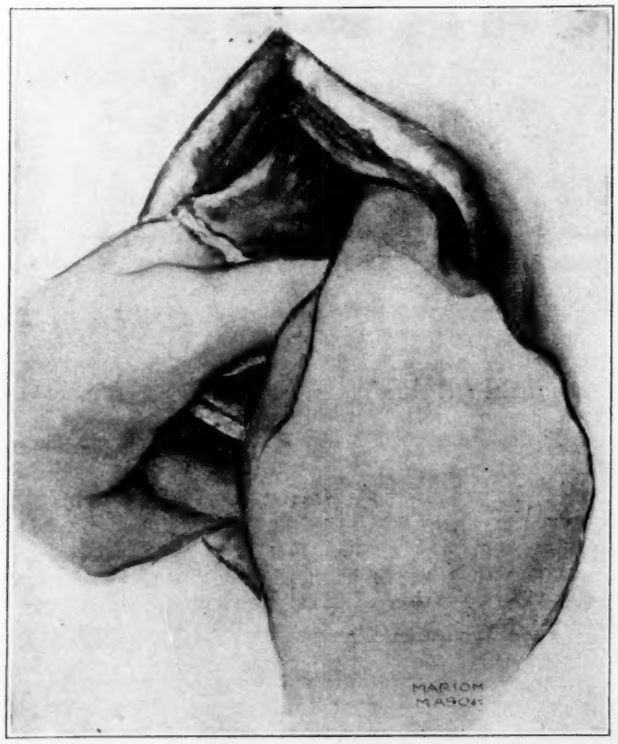

Fig. 11.—Finger of left hand deep within sac. Bimanual enucleation of sac.

present resting on the trigon. Cystograms revealed a large diverticulum of the right side of the bladder. Flat roentgenograms showed the coiled shadowgraph catheter, the large stone in the bladder and the shadow of a similar stone which proved to be in the lowest portion of the ureter.

CASE 4.—M. C., a man, aged 76, entered the hospital on account of difficulty of urination, hematuria and inability to empty the bladder. He had been rising three or more times at night for at least eleven years. Cystoscopic examination revealed the usual observations of a trilobar prostatic enlargement with marked trabeculation. Midway on the right lateral wall was seen a stone projecting about 2 cm. into the bladder. It was touched with a ureteral catheter but could not be dislodged from its position. At operation it was found to be part of an elongated finger-shaped stone practically filling a diverticulum of similar shape.

CONCLUSIONS

1. Increased intracystic pressure due to obstruction or infection or both play an important rôle in causing

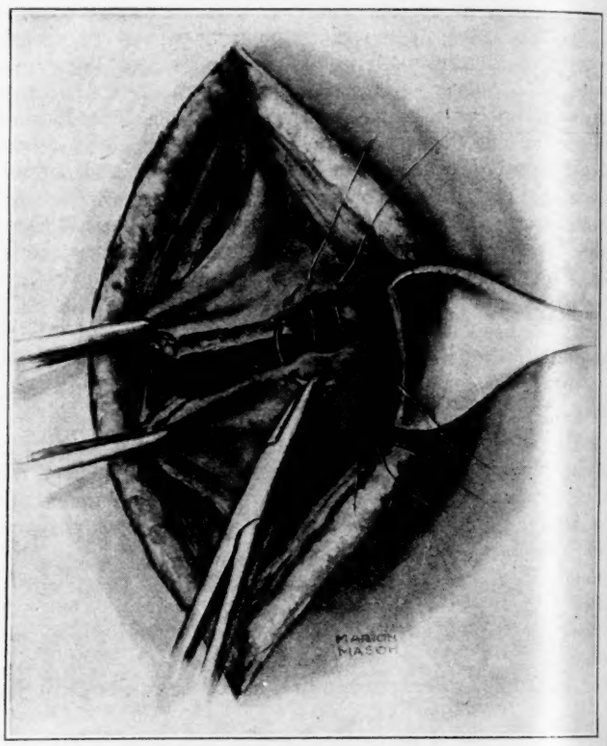

Fig. 12.—Appearance of bladder wound after excision of diverticulum, including zone of normal bladder wall. Beginning closure by interrupted chromic catgut sutures.

herniation of the bladder through a congenitally weak area.

2. Congenital diverticula show no histologic characteristics to differentiate them from the acquired type.

3. There is no diagnostic subjective symptom of bladder diverticula. Dysuria over a long period of years, and the necessity of emptying the bladder twice in a short time, may be considered suggestive symptoms.

4. Cystoscopy and cystography are the two important methods of diagnosis.

5. Complete surgical removal is indicated in all cases in which the general condition warrants operative intervention.

6. Preliminary drainage accomplishes little in preparing a patient for radical resection.

7. The technic described, with necessary modifications, has proved satisfactory in our hands.

25 East Washington Street—55 East Washington Street.

The Emotions of Men.—The individual who finds life most dull and uninteresting is the one whose every need is provided for. He never enjoys life because he never misses anything, he is never given a chance to really want. He is without motive, without ambition. And how could it be otherwise? Ambitions are not stirred, aspirations are not kindled, unless there are desires, strong but unsatisfied, unless there are objects, alluring but out of reach, objects which beckon and tantalize by receding when we would embrace them.—Lund, Frederick, H.: Emotions of Men, New York, McGraw-Hill Book Company., Inc., 1930.

THE TREATMENT OF EDEMA

EFFECT OF CALCIUM GLUCONATE ON EDEMA IN CHILDREN *

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AND
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DETROIT

Edema is one of the most serious symptoms of nephrosis and of some types of nephritis; cardiac failure and some forms of undernutrition also may be accompanied by edema.

The prominent symptoms of nephrosis are edema of the entire body, often pleural and peritoneal effusions, marked albuminuria, normal nonprotein nitrogen, oliguria, a low concentration or a reduction in the blood protein and the absence of hypertension and renal insufficiency. Other types of nephritis that occur with edema, also nephrosis, will usually, if not arrested, follow a chronic course and develop cardiac enlargement, hypertension, an increase in the nonprotein nitrogen of the blood and chronic kidney changes.

In children, these diseases are often accompanied by infection beginning in the upper respiratory tract, which often leads to death from septicemia, pneumonia, erysipelas, peritonitis or a combination of these diseases. Death practically always ensues in the edematous stage of the disease as the body's oxidative processes and immunologic properties are defective during the edematous stage. Baehr [1] states that in children with nephrosis the disease is usually superimposed on a chronic pneumococcus infection in the upper respiratory tract and that eventually most of these children die of a pneumococcus infection of ascites; that is, in the edematous stage of the disease.

Many methods have been suggested for the relief of edema from the tissues. The edema is often not complete in all the tissues and returns at the onset of any infection or from an exacerbation of a previous infection or from prolonged loss of albumin through the kidney.

The substances and methods commonly used in an effort to get rid of excess fluid in the tissues are the purine substances caffeine, theobromine, theophylline and their derivatives; the mercury compounds mild mercurous chloride, merbaphen and mersalyl; the salts calcium chloride, ammonium chloride, magnesium sulphate and ammonium sulphate; urea; parathyroid extract; thyroid therapy and a high protein diet; concentrated dextrose solution given intravenously; forcing fluids; starvation or any combination of these methods; also, paracentesis of cavities, especially the peritoneum, sometimes is followed by a relief of a generalized edema. Following or during the course of an acute infection such as measles or during a septicemia in children with nephrosis, edema has suddenly disappeared.

Calcium gluconate can be given intravenously, intramuscularly and subcutaneously. It is a preparation of calcium with gluconic acid and is a product of pure calcium gluconate containing 9.3 per cent calcium. It is prepared in ampules containing 15½ grains (1 Gm.) of calcium gluconate in about 10 cc. of water. It is our purpose to call attention to the effect of the administration of calcium gluconate on edema in children. In this report we shall give only the details of the cases that are important.

REPORT OF CASES

CASE 1.—Earl S., aged 4 years, entered the hospital, May 29, 1930, with a chief complaint of generalized swelling of the body. He had had measles at 1 year, whooping cough at 2 years and pneumonia and otitis media at 3 years. The present illness began one week before admission to the hospital with a "cold" and without a fever. There was some nasal discharge at this time and a slight cough. The "cold" was accompanied by a swelling of the eyelids, face and ankles, which became progressively worse each day until the entire body was swollen, in which condition he appeared at the time of entrance to the hospital. The child's appetite was good up until the time of this sickness. Nothing else of importance appeared in the history.

On admission to the hospital the patient weighed 30 pounds (13.6 Kg.). He appeared well nourished, was not acutely ill, and was pale with puffiness of the face and eyes; there was distention of the abdomen, edema of the lower extremities and no edema of the upper extremities, slight edema of the chest wall and moderate edema of the scrotum. The head was normal except for edema of the eyelids; the eyes were practically shut from the edema. The pupils and eye muscles were normal. The ear drums were normal, and from the nose there was a profuse mucopurulent discharge. The mouth and teeth were in good condition. The pharynx was very red, showing swollen inflamed tonsils filling the throat. The lungs were clear throughout. There was some cardiac enlargement but no murmurs, thrills or arrhythmia. The abdomen was distended 4 or 5 inches above the level of the chest. A fluid wave was present and there was fluid in the flanks. The liver and spleen were not palpable.

The specific gravity of the urine was 1.025; it was acid; albumin was 4 plus; there were a few granular casts, no red blood cells or leukocytes and no sugar.

Examination of the blood showed the red blood cells to be 4,650,000; white blood cells, 9,100; hemoglobin, 70 per cent; polymorphonuclears, 67 per cent; large and small lymphocytes, 33 per cent; nonprotein nitrogen, 26.5 per cent per hundred cubic centimeters; cholesterol, 248 mg.; calcium, 4.5 mg.; phosphorus, 2.1 mg. The serum protein estimation of the blood was not done. The Wassermann test of the blood was negative. The tuberculin test was negative.

Roentgen examination of the chest and sinuses revealed a limited development of all the paranasal sinuses and a slight indistinctness in outline of both antrums. The films of the chest showed some cardiac enlargement. The root gland deposit was distinctly in excess of normal and had the appearance of being secondary to a respiratory infection. There was no evidence of parenchymal disease in either the right or left lung field.

A provisional diagnosis was made of beginning nephrosis and chronically infected tonsils. The child was placed on a mixed diet containing 50 Gm. of protein. The child remained in bed and the rectal temperature ranged from 99.6 to 100.6 F. June 10, twelve days after admission to the hospital, 10 cc. of calcium gluconate was given intramuscularly. The weight at this time was 30 pounds 6 ounces (13.8 Kg.). Three days following, June 13, the weight was 29 pounds (13.2 Kg.) and on July 6, 26 pounds 2 ounces (11.8 Kg.). No other treatment was given at this time and no more calcium gluconate was given.

A tonsillectomy was done at this time and there was no return of the fluid following the procedure. The edema was cleared from the extremities, face and chest wall. The fluid was cleared from the abdomen and the abdomen was decreased in size. The child was eating well. Albumin was present in the urine but there were no casts, red blood cells or leukocytes. The blood calcium was 9.4 mg. per hundred cubic centimeters; the phosphorus, 4.2 mg., and the cholesterol, 280 mg.

CASE 2.—Harriet F., aged 17 months, entered the hospital, June 25, 1930, with a chief complaint of marked swelling of the extremities, upper and lower. She had had no previous

* From the Metabolism Clinic, Children's Hospital of Michigan.

1. Baehr, George, quoted by Christian, H. A.: Nephrosis: A Critique, J. A. M. A. 93: 23-25 (July 6) 1929.

acute illness. Seven days before admission she had had a "cold" with a nasal discharge accompanied by a swelling of the neck. The mother stated that at this time she had first noticed the marked swelling of the face followed by the swelling of the upper and lower extremities and the protrusion of the abdomen. The child had been fed milk, cereals, vegetables and fruit and was thought to have been normal up to the time of admission to the hospital.

On admission the patient weighed 17 pounds 8 ounces (8 Kg.) She appeared poorly nourished, pale and acutely ill, with puffiness of the face and eyes and swollen, edematous extremities. The head was normal except for the edema of the face. The eyes showed nothing abnormal. The ear drums were normal. There was a cervical adenitis, the size of half a lemon, on the left side of the neck, and the right side showed a pea-sized adenitis. There was a small amount of mucopurulent discharge from the nose. There were twelve teeth present. The mucous membranes were able but otherwise normal. There were moderately enlarged tonsils with chronic infection. There was a dulness over the heart extending to the left axillary line, and on the right side the dulness extended 7 cm. beyond the right sternal margin. There was a soft blowing murmur at the apex that transmitted to the axilla; there were no thrills or arrhythmia. The abdomen was distended from 3 to 4 inches above the level of the chest. A fluid wave was not demonstrable. The liver was felt three fingerbreadths below the costal margin. The spleen was not palpable.

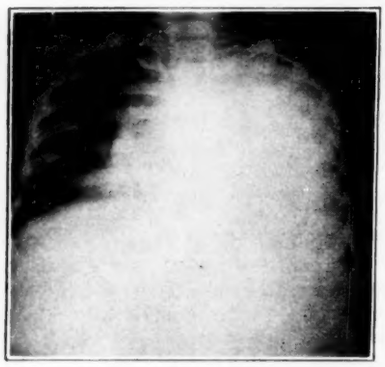

Fig. 1 (case 3).—Extensive pleural effusion at the time of the generalized edema, Aug. 15, 1930.

The specific gravity of the urine was 1.020; it was acid; albumin was 1 plus; there was an occasional leukocyte; no casts or red blood cells and no sugar were present.

Examination of the blood showed the red blood cells to be 3,896,000; white blood cells, 15,000; hemoglobin, 60 per cent; polymorphonuclears, 76 per cent; large and small lymphocytes, 24 per cent; nonprotein nitrogen, 41 mg. per hundred cubic centimeters of blood; cholesterol, 178 mg. Other blood estimations were not made. The Wassermann and Kahn reactions of the blood were negative. The tuberculin test was negative.

Roentgen examination of the chest and sinuses revealed a limited development of the sinuses but no clouding. Films of the chest showed a cardiac shadow extending to the left lateral chest wall at the level of the fifth and sixth rib anteriorly. There was an extensive root deposit around the course of the bronchi. The lung parenchyma was clear.

The child was placed on the regulation house diet for her age. She was given 10 cc. of calcium gluconate intramuscularly, June 30, and on July 22, twenty-seven days after admission, the weight was 13 pounds 3 ounces (6 Kg.) a loss of 4 pounds 5 ounces (2 Kg.) since admission. The weight had reached this point, July 12, and remained at this level. A blood transfusion was given at this time and the weight remained stationary. The patient was given small doses of digitalis by mouth and was discharged from the hospital at this time. The urine had increased to a 4 plus albumin content at the time of discharge, and the patient's blood count was: red blood cells, 5,400,000, and hemoglobin, 90 per cent, showing an improvement in the anemia.

A provisional diagnosis was made of beginning nephrosis, cardiac enlargement and secondary anemia.

CASE 3.—Sophie W., aged 10 years, entered the hospital, Aug. 9, 1930, with a chief complaint of swelling of the feet, abdomen and eyelids and of pain on urination. She became sick one month before, at which time she felt listless and weak. There was swelling at this time; she was seen by a physician, who said she had kidney trouble and advised her to go to a hospital. An accurate history could not be obtained on account of language difficulty.

On admission the patient weighed 81 pounds 4 ounces (36.8 Kg.). She appeared very edematous, with markedly swollen feet and legs and marked enlargement of the abdomen. The eyelids were red and puffy. The patient also had edema of the upper extremities. The skin pitted readily on pressure over the entire body. The glands were normal in size. The head was normal except for the edema. The eyes were normal. The ear drums appeared normal. There was no discharge from the nose. The teeth were in good condition. The mucous membranes were pale. The tonsils were large and septic. There was a marked swelling of the soft tissues of the neck. The chest was asymmetrical; the left chest was practically immobile. The fremitus was decreased over the entire left chest and was flat to precussion throughout. The breath sounds were absent, as was the spoken voice. On the right chest, percussion anteriorly was hyperresonant and the breath sounds were heard throughout. The left border of the chest could not be percussed because of the dulness of the entire left chest. The heart sounds were of good quality. There were no murmurs, thrills or arrhythmia. The abdomen was swollen and tense. There was a shifting dulness present. The extremities showed a marked edema.

The specific gravity of the urine was 1.030; it was acid; albumin was 4 plus; a few red blood cells and an occasional hyaline cast were found; there were no leukocytes and no sugar.

Examination of the blood showed the red blood cells to be 3,850,000; white blood cells, 20,000; polymorphonuclears, 80 per cent; large and small lymphocytes, 20 per cent; the nonprotein nitrogen, 22 mg. per hundred cubic centimeters of blood; calcium, 10 mg.; phosphorus, 4 mg., and cholesterol, 248 mg.; other blood estimations were not done. The blood Wassermann reaction was negative.

Roentgen examination of the chest showed a mass of pleural exudate on the left side of the chest, with a resulting displacement of the heart and the mediastinal contents toward the right. The cardiac shadow was partially obscure. There was no evidence in the right thorax and no frank parenchymal disease. The films of the sinuses showed slight cloudiness, but there was no evidence of an exudate in the sinuses.

The child was placed on a regulation house diet for her age and, over a period from August 15 to September 8, was given 155 cc. of calcium gluconate intramuscularly and subcutaneously. September 20, she showed a weight loss of 29 pounds 12 ounces (13.5 Kg.). There was entire absorption of the pleural exudate, and the ascites and abdominal enlargement had entirely disappeared. The patient's general condition was good and she had a much stimulated appetite. The urine examination at this time showed a specific gravity of 1.025 acidity; albumin, 1 plus; no sugar, red blood cells or leukocytes were found and only an occasional granular cast. The blood cholesterol was 263 mg. per hundred cubic centimeters; the nonprotein nitrogen, 32 mg.; calcium, 9.9 mg., and phosphorus, 3.3 mg. per hundred cubic centimeters.

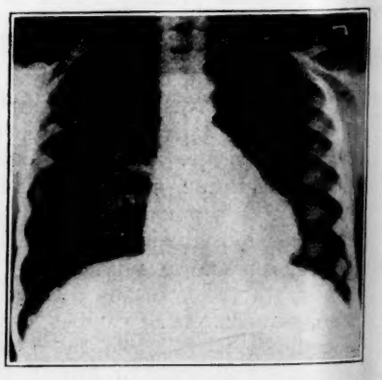

Fig. 2 (case 3).—Entire absorption of the pleural effusion after calcium gluconate therapy. No other treatment was used. Roentgenogram was taken, Sept. 8, 1930.

A provisional diagnosis was made of beginning nephrosis, pleural effusion, ascites and generalized edema.

The roentgen examination of the chest, September 19, showed that there had been a complete absorption of the fluid in the thorax. The root markings were prominent and the heart shadow was normal in size.

COMMENT

The administration of the calcium gluconate was not accompanied by any undesirable symptoms. There was no nausea nor vomiting. The calcium gluconate did not seem to have any harmful effects on the edematous tissues into which it was given. If the calcium gluconate is given in small doses, 10 cc. over different areas subcutaneously, the effect is less painful. Any amount of fluid given intramuscularly, sufficient to cause pressure in the muscle tissue, may cause pain and swelling of the tissue. There was complete disappearance of the hydrothorax, as evidenced by repeated roentgen examinations and clinical signs. The ascites disappeared and there was a decrease in the size of the abdomen. There was no unfavorable change in the urinary condition during or following the administration of the calcium gluconate that would lead us to believe that the calcium gluconate had any harmful effect on the kidneys. The calcium salt dehydrates the kidneys, which also may be edematous.

Results of Treatment

Case	Date	Weight	Treatment	Weight Loss
1	6/10/30	30 lbs. 6 oz.	10 cc. calcium gluconate	
	6/13/30	29 lbs.	.....	1 lb. 6 oz.
	7/ 6/30	26 lbs. 2 oz.	.....	4 lbs. 4 oz.
2	6/30/30	17 lbs. 8 oz.	10 cc. calcium gluconate	
	7/10/30	14 lbs.		
	7/22/30	13 lbs. 3 oz.	.....	4 lbs. 5 oz.
3	8/15/30	81 lbs. 4 oz.	10 cc. Ca G	
	8/18/30	.....	10 cc. Ca G	
	8/20/30	79 lbs.	20 cc. Ca G	2 lbs. 4 oz.
	8/22/30	78 lbs. 8 oz.	20 cc. Ca G	2 lbs. 12 oz.
	8/25/30	77 lbs.	20 cc. Ca G	4 lbs. 4 oz.
	8/28/30	75 lbs. 4 oz.	30 cc. Ca G	6 lbs. 4 oz.
	8/30/30	68 lbs. 4 oz.	15 cc. Ca G	13 lbs.
	9/ 3/30	68 lbs.	20 cc. Ca G	13 lbs. 4 oz.
	9/ 8/30	63 lbs.	10 cc. Ca G	18 lbs. 4 oz.
	9/15/30	57 lbs. 4 oz.	.....	24 lbs.
	9/20/30	51 lbs. 8 oz.	.....	29 lbs. 12 oz.

A general improvement in the appetite and general condition of the children was noticeable after they were free from edema; also, the dehydration of the mucous membranes of the respiratory tract seemed to have a good effect on the patient's resistance to the respiratory infections which were the onset of the usually fatal infections that complicate nephrosis in children in the edematous stages of the disease. In cases 1 and 3 there was a drop in the cholesterol of the blood after the edema disappeared. In case 1 there was a marked change in the calcium of the blood from 4.5 to 9.3 mg. per hundred cubic centimeters of blood following treatment. The calcium has remained at a normal level since this time.

The weight loss in the three cases was, respectively, 4 pounds 4 ounces (2 Kg.), 4 pounds 5 ounces (2 Kg.) and 29 pounds 12 ounces (13.5 Kg.), which depended on the size of the child and the stage of edema to which it was allowed to progress. There was no evidence of an alkalosis, such as depressed or irregular respirations, cyanosis, tetany or convulsions. As the calcium gluconate is slightly basic, we thought that the calcium gluconate may possibly affect the sodium bicarbonate level of the blood. That no symptoms occurred is important. To patient 3 we gave 155 cc. (240.55 grains) of calcium gluconate intramuscularly and subcutaneously in the buttocks and under the scapulae, over a period of twenty-one days, and the weight loss of edema followed to its lowest level—a 29 pound loss in thirty-six days. At this rate it took about 5.3 cc., or 7½ grains per pound of water, in reducing the patient. We believe that the amount of edema could be calculated from the patient's weight and height, and then the amount of calcium gluconate necessary could be given in one or two doses to reduce the edema quickly. This might become necessary in the face of an impending serious infection. We have not had enough cases at present to prove how soon we could free the patient of the edema without any harmful effects; also to check up the dosage accurately.

Nephrosis has often been referred to as protein diabetes by Epstein,[2] Kollert,[3] Löwenthal [4] and others on account of the loss of albumin through the kidneys and on account of the low blood protein. In the days before insulin, children with diabetes developed acidosis, and with the accompanying infections, which started mildly and progressed seriously, the outcome was soon fatal. Anything that can keep the patient from developing edema or that can relieve the edema quickly is good therapy. We should be able to prevent the return of the edema at its onset, at the beginning of an acute infection, with the use of calcium gluconate in small doses, and keep the edema from developing to a serious degree until the blood protein is replaced by sufficient protein feeding, continued over a sufficient length of time. We have been able to accomplish this at the onset of a slight respiratory infection in two of the cases that returned with beginning edema of the face last fall.

Munk,[5] Volhard,[6] Fahr,[7] Epstein,[2] and others have emphasized the importance of the protein loss in these cases and the need of giving sufficient protein in the diet to minimize the protein loss by the kidney as well as from the blood, and the importance of not giving too much protein so that kidney damage will be accentuated. It is necessary to keep these patients on a sufficient, measured amount of protein to promote further good treatment in order to restore the lost blood protein and to keep the kidneys from secreting too much albumin. Cowie, Jarvis, Cooperstock and Nakao,[8] have shown in a study of nephrosis in a child that from 1 to 3.75 Gm. of protein per pound of body weight is sufficient to restore the blood protein level and to decrease the protein loss from the kidneys.

The use of calcium gluconate and the optimal protein diet should prove useful in the successful treatment of children with nephrosis. Up to the present, the mortality of children with nephrosis accompanied by infections has been 50 per cent or higher.

541 David Whitney Building.

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ENORMOUS INCREASE OF HEART VOLUME WITH MITRAL STENOSIS

REPORT OF A CASE

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The association of auricular dilatation with mitral stenosis was well appreciated by clinicians a century ago.[1] It has long been recognized that in the presence of definite obstruction to the free flow of blood through the mitral orifice the first of the cardiac chambers to be noticeably affected by the altered relations of intracardiac pressure is the left auricle, which increases in size, largely the result of dilatation. This enlargement is often accompanied by an actual hypertrophy of the muscle fibers and an increase in the thickness of the auricular wall. Later the right ventricle and right auricle may be affected in a similar manner. More recently, the profound effect that mitral regurgitation alone, in the absence of stenosis, may at times exert in a similar direction has attracted considerable attention and is well shown in the unusual case recorded by Adam [2] of a traumatic perforation of the anterior cusp of the mitral valve resulting from a revolver shot wound. Pure mitral regurgitation developed and at postmortem examination six years later all four chambers of the heart were found to be greatly hypertrophied and dilated. Although adhesive pericarditis followed the removal of blood from the pericardium at the time of the injury, the adhesions were not massive and it seems likely that the mitral regurgitation in this instance was the factor primarily responsible for the extensive cardiac changes. Bach and Keith,[3] in a recent report, called attention to a case of extreme dilatation of the left auricle as a complication of rheumatic mitral regurgitation, with fused cusps but no stenosis, the orifice admitting three fingers easily. We have recently reviewed at the Massachusetts General Hospital the postmortem observations of twenty-six cases presenting an unusual amount of left auricular dilatation. Changes in the mitral valve, the result of a previous rheumatic infection, were present in every case. In 62 per cent of the cases the circumference of the mitral valve measured 7.5 cm. or less; that is, anatomic mitral stenosis was present, while in 38 per cent of the cases the mitral orifice exceeded 7.5 cm. in circumference and mitral regurgitation was the predominant feature. Auricular fibrillation is a well recognized additional factor predisposing to passive dilatation of the auricles and has usually been found present in those cases in which the enlargement is extreme; it was present in eighteen (69 per cent) of our series of twenty-six cases of auricular enlargement at the Massachusetts General Hospital.

The extraordinary extent to which the auricles may dilate while the heart continues to function with a fair degree of efficiency is of considerable interest both clinically and pathologically. The position of the auricles and their close proximity to important adjacent structures in the mediastinum is such that even moderate enlargement may be responsible for profound functional alterations in other organs the result of pressure on nerves, blood vessels or bronchi. At other times extreme dilatation, as in the case we are reporting, may be accompanied by relatively insignificant disturbances either in the heart or elsewhere in the body. King [4] in 1838, was the first to call attention to the possibility of a partial collapse of the left main bronchus by an enlarged left auricle. More recently Stoerk [5] has made a comprehensive study of the anatomic relations of the mediastinal contents and has pointed out the close relation of the left main bronchus and the upper surface of the left auricle; while the roentgenologic demonstration of left auricular enlargement has been recently studied by Steele and others.[6]

We are reporting herewith our observations on a patient with enormous increase of heart volume associated with disease of the mitral valve giving rise to both stenosis and regurgitation; this case presented several features of considerable interest.

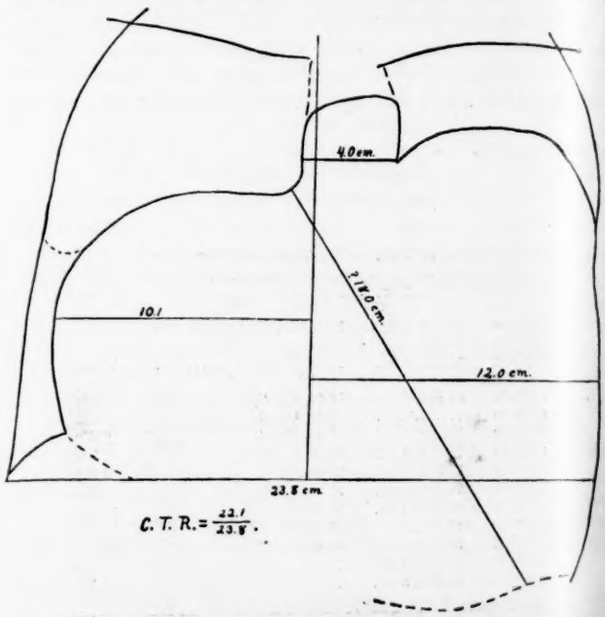

Fig. 1.—Orthodiagram taken four months before death, showing the enormous size of the cardiac shadow.

REPORT OF CASE

M. D., a man, aged 28, an Italian, had been under our observation for nineteen years. He was seen by one of us (G. M. B.) for the first time in March, 1911, at the age of 9 years, with an attack of acute rheumatic fever. There was evidence of cardiac disease at this time, and a loud blowing systolic murmur was audible over the precordium, best heard at the apex. He spent eleven weeks in bed with this attack.

In 1912, a year later, he was again seen because of dyspnea on exertion. Well marked mitral stenosis and regurgitation were present. He felt considerably better after two weeks of rest in bed. In 1915 there was a second attack of acute rheumatic fever, and the following year (1916) he entered the Massachusetts General Hospital for tonsillectomy. His heart was found to be moderately enlarged with a rather rapid

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rate and normal rhythm. The sounds were of fair quality, with a snapping first sound at the apex and a marked accentuation of the pulmonary second sound. The characteristic murmurs of mitral stenosis and regurgitation were present. The tonsils were removed and he was discharged two days later.

In 1917 he visited the outpatient department for a follow-up examination, having been in good health since his hospital entry and essentially without symptoms except for moderate dyspnea on exertion. At this time his pulse was noted to be slightly irregular (auricular fibrillation?) at a rate of 108 per minute. Roentgen examination showed the heart to be enlarged, of a "mitral" shape with extreme enlargement of the auricles, especially of the left, the total transverse diameter of the heart being 13 cm., and the transverse diameter at the base measuring 11.5 cm. In 1920 there occurred an attack of slight congestive failure accompanied by dyspnea, cyanosis, weakness and palpitation. Auricular fibrillation was noted definitely at this time. Digitalis therapy was started, resulting in considerable improvement in the patient's condition and he was able to lead a fairly active life, though at times it was necessary for him to spend one or two months in bed because of weakness and dyspnea on exertion.

In January, 1928, at the age of 26 years, he entered the hospital for a second time because of frequent headaches associated with a feeling of extreme exhaustion at the end of the day, increasing dyspnea on slight exertion, and a progressive loss of weight during the preceding three months. In spite of these symptoms, however, he had continued at work, taking digitalis intermittently and inadequately.

The patient was well developed and well nourished. On examination he lay flat in bed in no distress. Cyanosis was

Fig. 2.—Appearance of heart within the pericardium, occupying almost the entire width of the thorax. Only the upper lobes of the lungs are visible. Below the diaphragm is to be seen the enlarged congested liver. We are indebted to Mr. Philip A. Nutting for the photographs in this case.

not present, but there was a slight icteric tinge to the sclerae. The superficial veins of the arms and thorax were somewhat dilated and there was well marked pulsation of the jugular veins in the neck. The chest was clear, but posteriorly there was evidence of abnormality at the base of the left lung, with dulness on percussion, distant breath sounds, diminished tactile fremitus and whispered voice extending from the midscapular region to the base. Over the apex of the left lung there was an increase in the intensity of the breath sounds. The heart was markedly enlarged to the right and to the left, with a diffuse heaving impulse visible over the entire precordium but of maximum intensity in the sixth intercostal space in the anterior axillary line 10 cm. to the left of the midsternal line. The left border of dulness at this point was 11 cm., being 2.5 cm. outside the midclavicular line. The right border of

Fig. 3.—Front view of the heart in the present case with similar view of a heart of normal size (weight about 325 Gm.). Note the enlargement of the right auricle and ventricle and the enormous increase in size of the left auricle. A small amount of lung tissue is shown adherent to the top of the left auricle. Cannulas and tubes are shown in the superior vena cava and one of the pulmonary veins introducing fluid to keep the heart filled. The pencil at the apex of the heart points to the interventricular sulcus.

dulness in the fifth interspace measured 8 cm. from the midsternal line. At the apex, well marked systolic and diastolic thrills were palpable. The rhythm was absolutely irregular and the rate was from 60 to 65 per minute. The sounds at the apex were almost obscured by loud blowing systolic and rumbling middiastolic murmurs. Over the aortic area and along the left sternal border there were less intense blowing systolic and early moderately high pitched diastolic murmurs. No first or second sound could be heard in the tricuspid area. The radial pulse was of small volume. The blood pressure was 120 mm. of mercury systolic and 80 mm. diastolic. The abdomen was somewhat tender and resistant in the epigastrium and right upper quadrant with a moderate increase in liver dulness, but the edge could not be felt. There was a well marked systolic pulsation in this region. Clubbing of the fingers and edema of the extremities were not present, and the remainder of the examination was normal.

The laboratory data were essentially normal. Repeated urine examinations showed no abnormalities. The phenolsulphonphthalein test of renal function showed a 50 per cent excretion of the dye in two hours. Examination of the blood revealed a red cell count of 5,800,000 on two occasions and a hemoglobin determination of 80 per cent; the smeared specimen showed nothing remarkable. A culture of the blood showed no growth. The Wassermann reaction on the blood serum was negative, the icteric index was 12, and the nonprotein nitrogen 35 mg. per hundred cubic centimeters of blood. An electrocardiogram showed auricular fibrillation with a ventricular rate of from 50 to 60 and low T waves, without abnormal axis deviation.

Roentgen examination of the chest revealed marked dulness obliterating the outline of the border of the heart and diaphragm on the left side with the upper border somewhat curved, sharply defined and opposite the third rib anteriorly. The heart shadow extended to the right farther than normal. The shape was not that usually seen with free pericardial fluid but was thought to be due to tremendous enlargement of the heart or to encapsulated fluid.

The patient remained in the hospital for two weeks, during which time there was considerable symptomatic improvement, and at the end of this time he was discharged home with the

diagnosis of chronic rheumatic heart disease, mitral stenosis and regurgitation, probable aortic and tricuspid insufficiency, possible adhesive pericarditis, and auricular fibrillation. After discharge from the hospital he continued with a daily maintenance dose of digitalis, and except for two transient attacks of severe "prostration" and collapse he was able to lead a relatively active life, frequently driving an automobile 40 miles a day. Easy fatigability and dyspnea on exertion were his only symptoms. Roentgen and orthodiagraphic examination of the chest in February, 1930, showed a tremendous heart, but

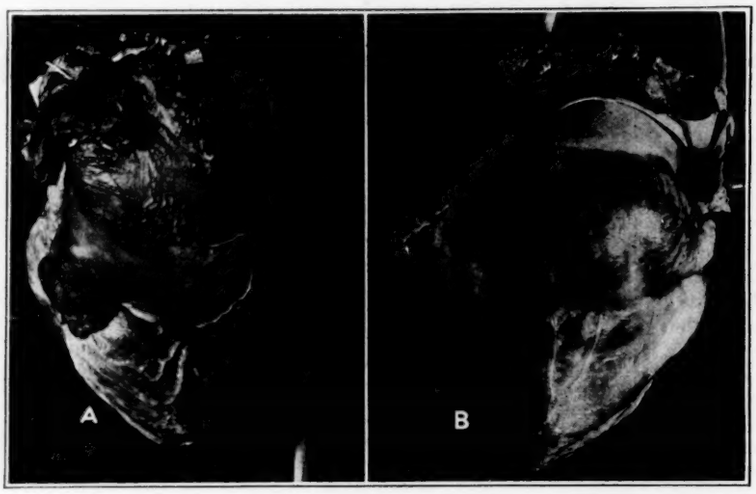

Fig. 4.—Left lateral (*A*) and right lateral (*B*) views of the heart in the present case. Note the muscle bands in the right auricular wall, and the posterior protrusion of the enormous left auricle.

essentially the same in appearance as two years previously (fig. 1). In June, 1930, the patient went swimming, drove home and shortly afterward, while dressing, suddenly fell forward and died immediately.

Postmortem examination, performed seventeen hours after death, showed no abnormality of the surface of the body. When the thorax was opened the heart was found to occupy almost the entire expanse of the thoracic cage, only a small part of the upper and lateral portions of each pleural cavity being occupied by the lung (fig. 2). The left margin of the heart was in contact with the left thoracic wall; the right margin extended to within 1 cm. of the right thoracic wall, so that the heart occupied almost the entire transverse diameter of the thorax. The transverse diameter of the heart in situ was 21.5 cm., which corresponded closely to the transverse diameter of the shadow in the orthodiagram made four months before death; the internal diameter of the thorax, post mortem, was 22.5 cm. The pericardium was slightly thickened and adherent to the surface of the left auricle over an irregular area of moderate size on the lateral and anterior surface of the latter. Otherwise it showed a normally close investment of the heart with glistening surfaces. The heart, after being removed from the thorax and filled with fixing solution (Klotz 1) with the main vessels ligated, displaced the enormous volume of 4,600 cc. of water (figs. 3 and 4; the displacement of the normal heart is from 700 to 800 cc.). After removal of the pericardium and all attached structures (except a small section of the trachea and primary bronchi) together with all clot from the interior, the heart weighed 850 Gm. The capacity of the left auricle was great, amounting to 1,760 cc. The right auricle was considerably dilated also and held 660 cc.; the right ventricle held 320 cc., and the left ventricle 70 cc. When the heart was opened, the mitral valve was found to be diseased, "fish mouth" in character with considerable thickening of the valve leaflets, but with a circumference of the irregular orifice of 8.5 cm. (dimensions of the opening measuring 1.5 by 3 cm.). The aortic valve showed evidence of slight thickening and stenosis, the orifice measuring 5.5 cm. in circumference. Considerable dilatation of the tricuspid ring was present, but no definite evidence of valvular disease; the circumference was 14.5 cm. The pulmonic valve was not remarkable and showed no evidence of structural change (circumference 8 cm.). The foramen ovale was closed, and the coronary sinus was normal and protected by a valve. The auricular appendages, except for their unusual size, were not remarkable and there was no evidence of an antemortem clot. The coronary arteries were patent. The wall of the left ventricle measured 13 mm. in thickness, the right ventricle 4 mm., the right auricle from 0.5 to 1.5 mm., and the left auricle 1 mm.

The pleural cavities contained no free fluid but were markedly diminished in size by the encroachment of the enlarged heart. Considerable anteroposterior flattening of the trachea from pressure of the distended left auricle was present, and the angle formed by the primary bronchi was markedly widened: considerable anteroposterior flattening of the left main bronchus was present also (fig. 5). The lungs were greatly diminished in size by compression of the enlarged heart, being estimated at one-third to one-half that of their expected size. The left lower lobe was completely collapsed, while the remaining lobes showed compression and congestion of moderate degree.

The liver was much enlarged, weighed 1,600 Gm., and was displaced downward. The normal lobulation was replaced by small irregular masses of slightly bulging, yellowish brown tissue. There was slight congestion of the kidneys; otherwise the remaining organs were essentially normal. An examination of the brain was not permitted.

Microscopic examination showed the muscle fibers of both ventricles of the heart to be markedly elongated and narrowed. The auricular walls were extremely thin and consisted almost solely of connective tissue with very rare muscle fibers. There was no evidence of myocarditis. Section of the lung showed congestion with the alveoli partially filled with a delicate exudate composed of albuminous detritus, a few red blood cells and mononuclear cells. There were present also collections of hemosiderin-filled alveolar phagocytes (heart failure cells). The liver showed a moderate amount of congestion, the hepatic cells being decreased in number and replaced by areas of congestion, necrosis and fibrosis. There were several large areas of fibrosis scattered throughout the organ, chiefly in the periportal regions. The kidneys showed considerable postmortem degeneration, so that the finer histologic changes of the glomeruli and tubules could not be made out with certainty. Scattered sclerosed glomeruli, patches of

Fig. 5.—View of the heart from above and behind, showing the bifurcation of the trachea (*T*) with the left bronchus (*L B*) displaced upward and flattened by pressure from an enormous left auricle.

lymphocytic infiltration, tubular atrophy, and fibrosis suggested healing and healed infarcts. The results of the examination of the spleen, pancreas, suprarenal glands and aorta were essentially negative. The anatomic diagnosis was chronic rheumatic heart disease, well marked chronic mitral endocarditis, slight chronic aortic endocarditis, dilatation of the tricuspid valve, hypertrophy and extreme dilatation of the heart, chronic passive congestion, cardiac cirrhosis of the liver, and healed infarcts of the kidney. The cause of sudden death was not determined.

COMMENT

The extraordinary displacement of the heart (4,600 cc.) is the outstanding feature of this case. The literature, which is notably deficient in reports of heart volume (displacement), contains no record that we have found of an actual measurement equaling that in the present case. The volume of the muscle mass of normal hearts has been comprehensively studied by Beneke [7] in a large series of cases of both males and females of all ages up to 80 years. The volume of the normal

Dimensions of the Filled Heart After Removal from the Thorax

	Cm.
Greatest circumference of the auricles	65.5
Widest diameter across the auricles	24.0
Greatest anteroposterior diameter (left auricle)	17.0
Circumference of left auricle	46.0
Vertical diameter of left auricle	12.5
Circumference of right auricle	44.0
Anteroposterior diameter of right auricle	15.5
Vertical diameter of right auricle	14.0
Greatest width of ventricles	16.5
Greatest depth of ventricles	8.0
Base of aorta to apex	18.0
Superior vena cava to apex	17.0
Circumference of aorta	7.0
Circumference of pulmonary artery above valve	6.5
Circumference of inferior vena cava	10.5

adult male heart muscle was found to vary from 260 to 290 cc., approaching the latter figure with advancing years. The muscle volume of women's hearts averaged slightly less than that of the men in the same decade of life. Hochrein [8] has determined the capacity of the various cardiac chambers in thirty normal hearts, and the total capacity of the four chambers averaged 561 cc. On the basis of these investigations it appears that the normal displacement of the filled heart should be approximately 800 cc., varying somewhat according to the age and the sex of the patient. It is of interest that a normal heart weighing 325 Gm. which we recently filled with fluid after the main vessels were ligated actually displaced 700 cc. of water, a figure that is in a relatively close proximity to the expected volume (displacement) estimated by combining the average values for capacity and volume given by Hochrein and Beneke. In the case of the greatly enlarged heart here recorded, cardiac hypertrophy was far less a factor than dilatation in causing the extreme enlargement; the weight was 850 Gm., which, although considerable, has often been exceeded; Smith [9] has recorded a heart that weighed as much as 1,755 Gm.

The capacity of the auricles was remarkable also. The left auricular capacity (1,760 cc.) has been exceeded by only three cases previously recorded; namely, that of Minkowski [10] in which the left auricle held 3 liters, Müller's [11] case with a left auricular capacity of 2.5 liters, and Goedel's [12] with a left auricular capacity of 2 liters. The right auricular capacity of 650 cc. appears to be a record one; we have found none larger reported.

It is of considerable interest that, in spite of the unusual size of the heart in our patient, he was able to lead a relatively active life up to the time of his sudden death, the cause of which is obscure. Although the brain was not examined, it seems unlikely that a cerebral embolus was responsible for his sudden exit, a more likely explanation being some unusual disturbance of cardiac mechanism, such as ventricular fibrillation or standstill.

7. Beneke, F. W.: Ueber das Volumen des Herzens und die Weite der Arteria pulmonalis und Aorta ascendens in den verschiedenen Lebensaltern, Cassel, Theodor Kay, 1879.
8. Hochrein, M.: Untersuchungen am venösen Teil des Kreislaufes, Arch. f. exper. Path. u. Pharmakol. **124**: 343, 1927.
9. Smith: Case of Monstrous Hypertrophy of the Heart, New York J. Med. **5**: 207, 1850.
10. Minkowski, O.: Demonstration eines Herzens mit ungewöhnliche starker Dilatation der Vorhofe, München. med. Wchnschr. **51**: 182, 1904.
11. Müller, G.: Ungewöhnliche Dilatation des Herzens und Ausfall der Vorhofsfunction, Ztschr. f. klin. Med. **56**: 520, 1905.
12. Goedel, A.: Eine ungewöhnliche Form der Herzvergrösserung bei Mitralstenose, Wien. klin. Wchnschr. **42**: 427 (April 4) 1929.

SUMMARY

1. A young man with mitral disease, under observation for nineteen years, lived a relatively active life up to the time of his sudden death, in spite of an extraordinary amount of cardiac enlargement and an extreme degree of auricular dilatation.

2. The volume (displacement) of the filled heart was 4,600 cc., which is from six to seven times that of a normal sized heart and establishes a record for future comparison. The literature is notably deficient in measurements of heart volume (displacement), a determination that should be a helpful indication of the degree of responsibility of cardiac dilatation in the production of cardiac enlargement. In the case recorded, cardiac hypertrophy was far less a factor than dilatation in causing the extreme enlargement; the weight was 850 Gm., which has often been exceeded.

3. The left auricle had a capacity of 1,760 cc., a measurement exceeded by only three other cases in the literature. The right auricle held 650 cc., which appears to be a record capacity.

VESICO-INTESTINAL FISTULAS *

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In a communication [1] read before the Section on Urology of the American Medical Association in 1927, the possible extension of inflammatory processes in viscera adjacent to the superior pelvorectal space was clearly emphasized. Instances were cited in which infection originating in the seminal vesicles, superior urethra and other structures had spread to this space and, forming inflammatory deposits, had subsequently involved other juxtaposed organs. It was in this communication that pertinent data relative to the etiology of vesico-intestinal fistula were brought to light.

The literature on the subject records a proportionately limited number of cases. Prior to 1870, when Blanquinque's [2] article appeared, there are a few isolated references mainly of French source, by Boyer,[3] DeSault [3] and Chopart.[3] In the seventeenth century Schenckius,[3] a German practitioner of Freiburg, noted the occurrence of a vesico-intestinal fistula in a fellow practitioner consequent on degenerative changes in a neoplasm of the sigmoid. In the same century, the Italians Cardano and Benivieni [4] independently reported similar cases. While the ancients did not fall short of noting at least one instance since the second century, the Ephesian physician Rufus [4] quoted a certain Praxagoras as having seen a case of vesico-intestinal fistula—probably the famous Praxagoras of Cos, the teacher of the greatest anatomist of the Ancients, Hierophilus.

The modern phase of this work began with the epochal contribution of Harrison Cripps [5] on "The

* Read before the Section on Urology at the Eighty-First Annual Session of the American Medical Association, Detroit, June 26, 1930.

1. Morrissey, J. H.: Seminal Vesicle and Prostatic Foci in Pelvic, Perirectal and Ischiorectal Suppuration in Males, J. A. M. A. **90**: 448 (Feb. 11) 1928.
2. Blanquinque: Fistules vesico-intestinals, Paris thesis, 1870.
3. Quoted by D. J. Oraison, Encyclopaedie d'urologie, p. 714.
4. Quoted by Pascal (footnote 6).
5. Cripps, Harrison: The Passage of Air and Faecal Matter with the Urine, London, 1885.

Passage of Air and Faecal Matter with the Urine." Written in 1885, many of the fundamental facts and views set forth therein still remain unchanged. He collected sixty-three cases and concluded that over 70 per cent of these were consequent on some inflammatory michief, including ulceration. In fifteen instances absolute evidence was obtained that the fistulas were the result of an abscess bursting both into the bladder and into the bowel. Some of these appeared to have followed confinement, some stricture of the rectum. In a consideration of cancer of the rectum and its frequency, he concluded that, although there was considerable destruction of tissue, numerous fungoidal granulations were produced which had a tendency to block contiguous cavities; and even in instances in which cancer had been the primary or contributory cause, the actual perforation of the bladder seemed to have resulted just as often from the bursting of the secondary abscess as from the direct extension of the growth itself.

In 1899 Pascal [6] reviewed the subject matter comprehensively from all angles, quoting the work of Dumenil [3] (1884), who proposed colostomy as a method of treatment, the work of Le Dentu [3] (1884) and his transvesicular approach, which was repeated by Pousson in 1895, the views of Czerny [3] (1887), who advocated a laparotomy, and the contributions of Tuffier [3] and Dumont,[3] who described appendicovesical fistulas.

Within recent years this entity has attracted the attention of a number of eminent American and English urologists and surgeons. Parham,[7] in 1895, attempted to close a fistula by opening the bladder and by suturing the fistulous opening. He failed. In 1911 Chute [8] reported two cases that came under his care, in both of which operation was attended with unsatisfactory results. In an analysis of the causes he felt that the fistulas arose from increased pressure in the bowel due to constipation and that fatty infiltration of the bowel wall was a predisposing factor in their development. Similarly, individual cases were reported by Keefe,[9] McKenna,[10] Rankin, Lauterman,[11] Judd and others. Lately this entire subject has been linked with diverticulitis and the literature pertaining to it has consisted primarily of case reports dealing particularly with the rupture of a sigmoidal diverticulum into the bladder. This view has received the sanction of Bryan.[12] He claimed that the most common site of the diverticula was in the neighborhood of the sigmoid flexure and since the distal end was more frequently the location, its adjacency to the bladder rendered rupture most likely. In the forty-two case reports that he collected, twenty-nine patients were males and thirteen females; the average age was between 50 and 60; he concluded that over 50 per cent were due to diverticulitis.

Of interest is Craig and Lee-Brown's [13] analysis of the 195 cases reported by Pascal. These authors noted a fistulous tract distributed as follows: 113 from bladder to rectum; 42 from bladder to colon; 26 from bladder to cecum; 6 from bladder to sigmoid; 7 from bladder to appendix. In 1915 Cunningham [14] reported a total figure of 342 cases of vesico-intestinal fistula, basing the totality on 286 cases culled by Pascal up to 1900, 42 by Pristavesco [15] from that date to 1912, and his own additional 8 up to the time of the publication of his articles.

Etiologically it must be said that these fistulas are secondary to some causative factor, and not infrequently the result of malignant growths, pelvic tuberculosis, syphilis and rarely actionary cases. These have been referred to as spontaneous fistulas by Oraison. A case of tuberculosis of the seminal vesicle has been reported in which an abscess perforated into both the rectum and the bladder. A much more common origin is an inflammatory focus, productive of rectal ulcerations, perirectal abscesses, diverticulitis and appendical abscesses. The French authors mention adnexal inflammatory masses in women as a potential cause, and likewise destructive diseases of the pelvic bony structure. These, of course, are exceedingly rare, although rupture of a tabo-ovarian inflammatory mass into either the rectum or the bladder independently have been reported by gynecologists. It must be borne in mind that oftentimes both the superior and the inferior pelvirectal spaces may harbor a smoldering focus of infection—organisms originating in adjacent inflamed areas—which may under favorable circumstances flare up. Doubtless the increased incidence of inflammatory diverticulitis as a productive factor is due, in the main, to a better investigation of these cases, including roentgenographic study. This diagnostic adjuvant Cripps did not possess and consequently he failed to note diverticulitis in the fairly large number of cases he had occasion to investigate and report. Cripps does mention, however, two cases in which stone in the bladder was undoubtedly the cause of a vesico-intestinal fistulous development. Since the war, a number of fistulas have been reported the direct result of external violence, usually consequent on gunshot wounds, shrapnel fire, stab injuries and actual fracture of the pelvic bone with fragmentation. To this category there may be added surgical trauma, resulting from intestinal injury in debilitated subjects, extirpation of pelvic tumors, and the now discarded method of puncturing the bladder by way of the rectum.

The lesions resulting in fistulas are less often in the bladder and when located there are usually the result of a malignant growth, vesical tuberculosis or trauma. The location of the opening in the intestinal canal is most common in the rectum, nearly half of the collected cases being in this structure. The next most common location is the sigmoid and next in frequency are the small intestine and the cecum. The location of the opening in the bladder is most frequently situated in the region of the trigon, yet in many cases it has been observed in the posterior wall and a few have been observed on the summit of the bladder. Naturally a case in which the element of infection plays an important part will show a perforation in the region of the trigon, this portion of the bladder being the most fixed, whereas the remainder of the viscus will have a tendency to be displaced by a collection of pus. The fistulous

6. Pascal: Des fistules vésico-intestinales acquisés, Paris thesis **39**: 5, 1899.
7. Quoted by Chute (footnote 8).
8. Chute, A. L.: Two Cases of Vesico-Intestinal Fistula Due to Diverticulitis of the Sigmoid, read before the American Association of Genito-Urinary Surgeons, New York, June 2, 1911.
9. Keefe, J. W.: Diverticulitis of the Sigmoid or Pelvic Colon with Sigmoidovesical Fistula, Boston M. & S. J. **194**: 577 (April 1) 1926.
10. McKenna, C. M.: Diverticulum of the Large Intestine Communicating with the Urinary Bladder, J. Urol. **13**: 443 (May) 1925.
11. Lauterman, M.: Appendicovesical Fistula, Canad. M. A. J. **6**: 910 (Oct.) 1916.
12. Bryan: British Journal of Surgery, the Annals of Surgery.
13. Craig, R. G., and Lee-Brown, R. K.: Entrovesical Fistula, Surg. Gynec. Obst. **44**: 753-755 (June) 1927.
14. Cunningham, J. H.: Rectovesical and Entrovesical Fistulas, Surg. Gynec. Obst. **21**: 510-518, 1915.
15. Pristavesco, quoted by Cunningham (footnote 14).

tract between the bladder and the intestinal canal may be a direct communication or a long and tortuous sinus. When the former type, it is generally the result of carcinoma or tuberculosis originating in either the bladder or the rectum; in the latter, it is more frequently the result of an abscess originating between the bladder and the rectum and opening into these regions by apertures situated at different levels.

SYMPTOMATOLOGY

Prior to the establishment of a communication between the bladder and the gastro-intestinal tract, the symptoms are somewhat variable depending on the nature and severity of the disease and on the structure involved. Once a perforation has occurred the symptoms are aggravated and pathognomonic—frequent painful micturitions, the passage of pus, fecal matter and gas via the urethra. If the fecal material is in hard lumps, further difficulties of urination may occur with tenesmus. Feces, however, are not always present in the bladder; the communicating lumen may be so small as to permit solely the passage of gas. But the symptom most distressing to the patient is the uncontrollable escape of flatus, which may occur involuntarily or during the act of straining. The symptoms dependent on the pressure of urine in the rectum are those of proctitis and are seldom of consequence. Later, secondary symptoms occur and, if the suppurative process in the bladder continues, kidney infection with its chain of manifestations takes place and death may ensue.

The prognosis depends on the nature of the primary lesion to which the fistula is secondary. It is naturally most unfavorable in cases in which carcinoma or tuberculosis is the primary cause. In instances in which the communication is due to an inflammatory or traumatic factor, the prognosis is far more favorable.

Treatment is best considered as operative with the radical and palliative phase and nonoperative forms. It must of necessity depend on the nature of the etiologic factor producing the fistulas. When the primary cause is a traumatism or an inflammatory process, such as simple ulceration, abscess or rectal stricture, operative measures offer considerable, but when the intestinal vesical communication is due to carcinoma or a tuberculous process originating either in the bladder or in the alimentary canal, operative measures are seldom successful. In instances in which the fistula appears to have followed the rupture of an intestinal abscess or is due to tuberculous ulceration or to syphilis, spontaneous healing under appropriate nonoperative treatment has been known to take place.

Operative Methods.—1. Abdominal section and separation of the intestines from the bladder at the point of union and repair of the opening in both organs, or, if necessary, a resection of the bladder and intestine so as to include the tract of the fistula, and the repair of the incision by the method most appropriate in the individual case. 2. Perineal operation through the vagina or perineal surface in cases in which the communication has been demonstrated to be low down in the rectum. Operations conducted from this region have seldom permitted of closing the rectal and vesical opening; but if separation of the adherent intestine from the bladder is accomplished, the wound packed, the bladder drained by a retained catheter, the rectum packed above the rectal opening and the bowels prevented from moving by a liquid diet and liberal use of opiates, success has often been obtained. 3. Colostomy, with the object in view of diverting the flow of feces from the bladder. This is the ideal procedure. The important point to be determined before performing a colostomy is the location of the intestinal opening, for, if the communication is in the small intestine or cecum, colostomy would be without value. 4. Suprapubic cystotomy, with the end in view of allowing free drainage for the fecal contents of the bladder. This palliative measure, often resorted to, should be reserved for cases of extensive carcinoma when little else can be done.

Several other considerations as to the etiology of these fistulas must be borne in mind in respect to radium therapy. Several cases of extensive ulceration in the posterior bladder wall following irradiation for carcinoma of the bladder and prostate have been noted. Two cases of slough of the bladder wall were observed [16] with a large fistula. Both patients died.

In another case [16] a fistula developed following irradiation with gold seeds for extensive carcinoma of the uterus. Irradiation of the lateral fornices was too great and the slough eventually resulted in a communication between the intestine and the bladder. Naturally these cases are not reported widespread. It is my opinion that an activating cause in certain cases wherever diverticulitis may exist lies in the presence of postprostatic infection. This focus may have been smoldering for years, contingent on infection in the bladder, and an increased bladder activity set up an inflammatory process which eventually established a fistula of the type described. Two personal cases are recorded in which the passage of gas through the urethra was not noted until after the removal of the prostate.

REPORT OF CASES

CASE 1.—A. P., seen in January, 1925, complained of a sense of pressure in the bladder and of smarting on beginning to void. The discomfort abated and disappeared under bladder irrigations and guaiacol. The discomfort returned three months later and this time responded less satisfactorily to treatment. Numerous examinations were made during this time and numerous colon bacilli were found in the urine. There was no residual urine; the frequency was from eight to ten times daily. He was given a careful examination by a gastro-enterologist, who felt that he had a colitis and advised a diet. The patient looked and felt well otherwise. A rectal examination revealed a definite infiltration in the rectovesical space and marked fulness with extreme tenderness. Cystoscopy showed a very inflamed bladder, and a catheter passed up the left ureter for a very short distance. Numerous small particles of brown material were floating in the bladder, and the possibility of intestinal fistula was suspected. The patient was to go to the hospital for pyelography but refused to do so. Two weeks later he was seen by Dr. Keyes, who gave him a second cystoscopic examination. At that time a definite opening was noted in the region of the left ureter and a diagnosis of fistula was made. The patient was operated on by Dr. Brewer and cancer of the sigmoid was discovered. The patient left the hospital with an artificial anus and lived one year, when he died of the condition. The bladder symptoms disappeared entirely on the establishment of the colostomy.

CASE 2.—The patient entered the hospital because of frequency of urination and complete retention. There was from 15 to 20 ounces of residual urine. The patient was operated on for cancer of the prostate. It was noted that the prostatic growth was well encapsulated and the carcinomatous portion extended well into the postprostatic space. An attempt was made to remove this by sharp dissection, and both vesicles were cleaned out.

It is possible that the rectum may have been injured at the time, although in the routine examination of the rectum following the operation no evidence of such an injury could

16. Personal communication to the author.

be made out. The patient returned to the ward in good condition with a retention catheter in place, and five days following the operation the presence of a superficial emphysema was noted. This gradually extended over the entire scrotum following the usual course of urinary extravasation. The retention catheter had meanwhile been dislodged from the bladder and there was a considerable leakage from the perineal wound. The emphysema finally disappeared and when the wound healed it was noticed that the patient passed a small quantity of feces through the urethra. The patient finally left the hospital five weeks after the operation, and for three years following passed gas and feces regularly through the urethra. His general health was excellent; he died of some intercurrent infection in Bermuda three and one-half years after the operation.

CASE 3.—D. P. had had bladder symptoms for a period of ten years with a definitely enlarged prostate. The patient had noted an inability to empty the bladder unless sitting down, and considerable pressure was required on the perineum. Perineal prostatectomy was done at St. Bartholomew's Hospital and an enormous prostate was removed. It had previously been possible to pass the examining finger over the summit of the prostate.

The patient had a spirited convalescence and left the hospital six weeks following the operation. The residual urine never disappeared entirely, averaging from 2 to 4 ounces. A rectal examination was not made until one year after the patient left the hospital. At this time it was noticed that a definite papilloma of the anterior rectal wall was present and on prostatectomy this was made out as extending well up toward the sigmoid. The condition improved greatly on rectal irrigations but the urine began to become dirtier, and a possible communication between the bladder and the rectum was suspected. Marked fulness was made out in this area, and the passage to the rectum had narrowed down to the size of a small catheter. The patient refused any treatment, however, until complete retention occurred on board an ocean steamer. Colostomy was done on his arrival in New York, and the patient lived three years after this time with amelioration of bladder symptoms and a marked improvement in his health. Six months before his death, the area between the bladder and the rectum broke down and a moderate fecal discharge was observed through the urethra.

CASE 4.—J. H., a minister, had prostatic symptoms for a period of two years, particularly noting straining and urgency, with no great amount of residual. Cystoscopy revealed a large prostate with the bladder greatly inflamed and red in the area of the trigon. On catheterization, numerous gas bubbles followed the irrigation and the patient had also observed an occasional passage of gas through the urethra. The first stage of the prostatectomy was done and the bladder was drained for a period of six weeks. The urine had a fecal odor and methylene blue (methylthionine chloride U. S. P.) injected in the rectum appeared in the bladder urine within two or three minutes.

No evidence of a rectal or sigmoidal growth could be made out, although there was a definite narrowing of the colon in the region of the bladder and sodium iodide injected into the bladder showed evidences of filtering through into the space above and posterior to the bladder. In the operation the prostate was removed with difficulty, owing to firm fixation. The patient had a difficult convalescence, and the suprapubic wall was kept open for two months following the operation. At this time the mucosa of the bladder regained its normal appearance and the bladder was allowed to close. The patient's general condition three years after the operation was good and he had no further symptoms from the fistula. A later history was obtained of proctitis and perirectal abscess due to excessive horseback riding over a period of years.

CASE 5.—E. R., a Jewess, was admitted to City Hospital in poor condition. The patient was admitted to Harlem Hospital and gave a history of having been operated on three weeks previously. She had applied to the dispensary for treatment and was told that the uterus was tipped and that operation would have to be done from below to remedy the condition. This was carried out (Watkins interposition was probably done) and the patient went home two weeks afterward. She developed mild abdominal pain, distress with frequency of urination, and pain over the bladder. Three days after admission to the Harlem Hospital she began to pass feces by the urethra, and she was sent to the City Hospital. At the time of the cystoscopy the patient was semimoribund and the cystoscopy was carried on under difficulty. Feces were passing into the bladder and the viscus was washed clear of difficulty. A loop of encrusted suture projected into the bladder, and posterior to the suture a large hole was noted which discharged intestinal contents. A diagnosis of traumatic vesico-intestinal fistula was made. The patient died two days later and autopsy showed a large inflammatory mass posterior to the bladder, involving the fundus of the uterus, and two loops of ileum in the bladder wall. The sutures bringing the uterus in position had apparently passed through all three structures and, following the spread of infection, a fistula had developed.

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ABSTRACT OF DISCUSSION

DR. FRED RANKIN, Rochester, Minn.: While this bizarre pathologic condition appears infrequently, it is formidable when it does occur, is difficult to handle, and is frequently attended by high mortality and undesirable end-results. Etiologically, these enterovesical fistulas may be divided into three classes: (1) the congenital group; (2) those due to carcinoma, and (3) those due to inflammatory processes. The latter group, of course, contains the appendical cases, which may be divided into (1) those cases in which an acutely inflamed appendix fastens itself onto the bladder and ruptures without abscess formation or without spreading contamination into the peritoneal cavity, and (2) those cases in which an appendical abscess necroses into the bladder and forms a direct communication between the cecum and the bladder. In my series, I am impressed by the fact that males predominate over females in falling victim to this unfortunate condition, two to one. In the first place, more men have diverticulitis of the sigmoid. In the second place, the uterus is between the bladder, the rectum and the sigmoid and makes an attachment between these organs more difficult. Diverticulitis occurs more frequently in fat, short individuals who have a tendency to lead a sedentary life. Physicians seem to be especially prone to develop diverticula. Strangely enough, diverticulitis does not cause more fistulas than does carcinoma, since among my patients there were twelve cases due to diverticulitis, ten to carcinoma and four to inflammatory conditions. The operative treatment of this type of ailment is a difficult one and the tendency to operative failure both from the standpoint of immediate mortality and that of end-results, as evidenced by the recurrence of a fecal fistula which drains to the outside this time, is striking. My operative mortality was approximately 10 per cent. In nine of the patients operated on, two or more operations were necessary before the fistula was closed. The usual procedure in operating on these patients is a direct attack on the fistula in one stage, attempting to separate the sigmoid or cecum from the bladder and to close the two openings. Because of the amount of inflammation present, failure is frequent, and I think one may well accept Dr. Morrissey's suggestion that a primary colostomy is of great assistance. I have done this myself in three cases and I am convinced that it is a practical method. It sidetracks the fecal current and permits the infection in the bladder to be cleaned up, and in this way likewise allows the kidney infection to be taken care of.

DR. ARTHUR L. CHUTE, Boston: The published case of mine that Dr. Morrissey referred to was an interesting one, but I lost the patient. The case was striking in that the man was passing great numbers of strawberry seeds in the urine. I operated on him, finding the fistula low in the pelvis and sewing it up. The man died and at autopsy I found a walled off abscess in the pelvis. I saw another case with Dr. M. H. Richardson in 1910, also reported in the paper to which Dr. Morrissey has referred. This patient was operated on twice, but there was a fatal outcome from a general peritonitis. The only case of this type in which I have had a favorable outcome was that of a patient I saw some six years ago and on whom I did a one stage operation, closing the fistulous opening in the bowel and the one in the bladder. I instituted drainage, but he apparently

had a suppurative pericystitis and had to have a lot of drainage for a long time. I had to open up the perineum, but he finally made a good recovery. Those are the only three operative cases that I remember to have seen, though I recollect a woman with this condition who refused operation and who died a short time afterward, but I think of some intercurrent trouble. Dr. Morrissey's suggestion that drainage be done preliminary to operation is very important and should be carried out.

DIAPHRAGMATIC HERNIA IN A CHILD, AGED ONE YEAR

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FALL RIVER, MASS.

The increasing number of cases of diaphragmatic hernia reported in recent literature suggests unusual vigilance in detecting this deformity. Nevertheless, its appearance in children under 10 years of age is still considered rare. Apparently this is more indicative of the difficulties of recognition than of the infrequency of occurrence. However, Dodds and Flew [1] roentgenographed every child born in the obstetric hospital in London over a period of eighteen months and found only one case of congenital diaphragmatic hernia in 800 cases, and only one case in 200 postmortem examinations. In Greenwald and Steiner's [2] series of eighty-two cases in children aged up to 10 years, (1912-1928) only twenty-five were recognized during life. Eleven were operated on; six patients died after operation. Of the five that recovered, two had gastro-enterostomy because in each case it was found impossible to reduce the stomach. Parenthetically, gastro-enterostomy can serve no useful purpose when the stomach is involved in the hernia because the stoma is made in the chamber below the aperture in the diaphragm.

Aue,[3] Speik,[4] Goetsch,[5] Behrend,[6] Bettman and Hess,[7] McFadden,[8] O'Connell [9] and Sanders [10] each report a case in which recovery followed operation. Aue operated successfully on a boy, aged 9 years. He also operated on a girl, aged 5 years, who had a recurrence three months later; the parents refused operation a second time and the child died two weeks later from intestinal obstruction. Woolsey [11] operated successfully on an infant, aged 35 days, but the child died in one year from acute intestinal obstruction due to a recurrence of the hernia. Brown [12] reports one case and Carman [13] reports two cases in which operation was performed with fatal termination a few hours after the operation. The three patients, two aged 5 years and one aged 9 years, died from "shock." Thus far, the total number of patients under 10 years of age appearing in the literature as operated on reaches twenty-two, with a total mortality rate of 41 per cent. This rate does not include the two fatal cases from recurrence. My reported cases have been overlooked by Greenwald and Steiner. Including recurrences in the first patient, I have had seven consecutive cases in which no deaths occurred after operation. For comparison, in 1912 the operative mortality reported by Scudder [14] was 75 per cent; high, because most operations were undertaken for the relief of intestinal obstruction.

A recent case in my series is remarkable because of the extreme youth of the patient and her rapid and uneventful convalescence, which was due, in part, to operation undertaken while her condition was good.

REPORT OF CASE

P. L., a girl, aged 1 year, admitted to Truesdale Hospital, June 15, 1930, had been delivered normally as the result of her mother's third pregnancy. For seven months the baby seemed well. In January, 1930, she had a slight attack of bronchitis, which lasted for two weeks. During this interval the mother heard rumblings and gurglings in the child's body. Believing that this indicated only an unusual degree of gastric fermentation, she felt no particular concern. When 9 months old, the child had a digestive upset and refused her feedings. Two weeks previous to admission to the hospital the baby had a severe crying spell, wanted to be held, and refused to lie down. Dr. A. E. Parkhurst of Beverly, Mass., after a complete examination, established the diagnosis of diaphragmatic hernia.

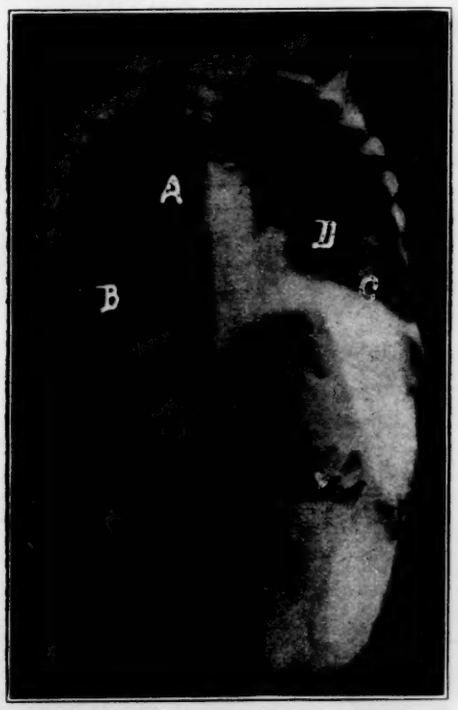

Fig. 1.—Appearance before operation: *A*, cardiac area (dextrocardia); *B*, right side of diaphragm; *C*, left side of diaphragm; *D*, herniated portion of stomach.

The child had the appearance of a fairly normal baby and weighed 18¾ pounds (8.5 Kg.). With the exception of the thorax, the general physical examination was negative. The cardiac area of dulness extended 4 cm. to the right of the midsternal line. On inspiration a sound vibration was perceptible when the hand was placed lightly over the epigastrium. There was slight dulness over the left base. On inspiration a sound resembling that of bubbling water was heard with the stethoscope over this area. Sometimes this sound was so audible that it could be heard anywhere in the room.

After a barium meal a roentgen examination was made and a diaphragmatic hernia was revealed in the left side with

1. Dodds, Gladys H., and Flew, J. D. S.: J. Obst. & Gynec. Brit. Emp. **35**: 737, 1928.
2. Greenwald, H. M., and Steiner, Morris. Diaphragmatic Hernia in Infancy and in Childhood, Am. J. Dis. Child. **38**: 361 (Aug.) 1929.
3. Aue, O.: Deutsch Ztschr. f. Chir. **160**: 14, 1920.
4. Speik, F. A., in discussion on Portis, M. M., and Portis, S. A.: Diaphragmatic Hernia Diagnosed During Life, J. A. M. A. **75**: 1262 (Nov. 6) 1920.
5. Goetsch, Emil, reported by Gordon, M. B., and Golann, D. T.: Traumatic Diaphragmatic Hernia in a Girl of Eight Years of Age, Am. J. Dis. Child. **22**: 579 (Dec.) 1921.
6. Behrend, M.: Arch. Pediat. **41**: 408 (June) 1924.
7. Bettman, R. B., and Hess, J. H.: Incarcerated Diaphragmatic Hernia in an Infant, with Operation and Recovery, J. A. M. A. **92**: 2014 (June 15) 1929.
8. McFadden, G. D. F.: Brit. M. J. **2**: 45 (July 13) 1929.
9. O'Connell, J. C.: Operation witnessed at the Rhode Island Hospital.
10. Sanders, R. L.: Ann. Surg. **91**: 377 (March) 1930.
11. Woolsey, J. H.: Diaphragmatic Hernia, J. A. M. A. **89**: 2245 (Dec. 31) 1927.
12. Brown, H. P.: S. Clin. North America **9**: 1191 (Oct.) 1929.
13. Carman, R. D.: Radiology **3**: 26 (July) 1924.
14. Scudder, C. L.: Diaphragmatic Hernia, Ann. Surg. **56**: 348, 1912.

most of the fundus of the stomach in the thorax and the heart displaced to the right. A barium enema excluded the colon. The diagnosis of congenital hernia of the stomach through an opening in the left side of the diaphragm was confirmed.

A few days were necessary for the patient to recover from the fatigue of examination and to reestablish her normal body functions. During this time a thorough evacuation of the barium from the intestinal tract was obtained. June 21, 1930, the operation for repair of the diaphragm was carried out as follows:

The patient was placed on the right side and the left arm was extended over her head. An intercostal incision was made extending through all layers of the thoracic wall, including the pleura. The incision began 2 cm. from the left border of the sternum; it was first carried downward and then along the course of the eighth interspace to the posterior axillary line, where it was directed upward to form a lapel. The upper rib was divided at each end of the incision, the rib flap being turned upward. At this point the anesthetist allowed the lung to remain partially collapsed. This exposed the

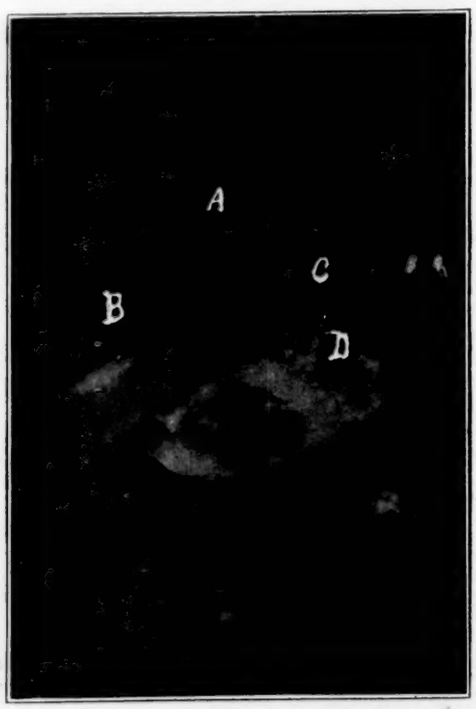

Fig. 2.—Appearance after operation: *A*, cardiac area (normal); *B*, right side of diaphragm; *C*, left side of diaphragm; *D*, stomach in normal position below the diaphragm.

hernial opening, a para-esophageal aperture, through which the upper two thirds of the stomach and the spleen had passed into the thoracic cavity. There was no sac. If there was one originally, its membranous covering had ruptured, collapsed and was not discernible. Now it was the picture of a false congenital hernia. The edges of the hernia were raised by grasping the margins with Allis forceps. The stomach and spleen were replaced within the abdominal cavity without difficulty. The opening in the diaphragm was closed by five interrupted double-strand sutures of number 5 silk. The suture line was reinforced by single-strand sutures of silk which were placed between the first sutures. Further examination of the diaphragm showed a second defect about the size of a half-dollar (30 mm.) in the anterior and central area of this leaf at the foramen of Morgagni. There was only a thin, serous membrane of pleura covering this defect of the musculature. This area was repaired by infolding the serosa with interrupted sutures of single-strand number 5 silk.

The wound in the chest wall was closed by restoring the divided rib to its normal position and holding it in situ by interrupted sutures of number 2 chromic catgut. The muscles of the chest wall and their fascia were also sutured, this time with a running stitch. As the final loop of catgut was inserted to close the pleural cavity, the lung was fully expanded. The edges of the skin were united with a continuous lock-stitch of horsehair. The whole wound was reinforced by the use of five silkworm-catgut sutures. They entered the chest cavity in the ninth interspace and emerged at the seventh.

Immediate postoperative recovery was good. The first day after operation the child's temperature rose to 103 F. with respirations at 44. She took fluids well, however. A physical examination failed to reveal any evidence of fluid in the left pleural cavity. The roentgenograms taken five days after operation revealed a shift in the position of the heart toward its normal position and the stomach in its normal location below the left diaphragmatic arch. There was no evidence of fluid.

The baby's convalescence was uneventful. She took nourishment well and appeared to have very little discomfort after the first day. Ten days after operation she was transferred from the hospital to her home, a distance of 70 miles, without incident. The wound had healed by primary union.

In view of this experience and of past observations, it is clear that the lives of infants and young children should not remain in jeopardy from failure to deal with hernia of the diaphragm by operation. In a series reported by Woolsey,[11] two infants out of twenty-four children were operated on successfully at 31 months and 35 days, respectively. The author says:

> Of these twenty-two, at least seven, in none of whom a diagnosis had been made, could have been operated on and possibly their lives might have been saved, and seven others of the twenty-two, also without diagnosis, and therefore proper treatment, might have had their lives prolonged and the operation performed later.

When the dangers of unilateral intrathoracic pressure are given careful consideration during operation, these little patients withstand the technical stage of closing the aperture in the diaphragm remarkably well.

The diagnosis of diaphragmatic hernia appears to be more difficult than the operation for its cure. It is not necessary to draw on the imagination to realize that respiration and circulation must be greatly embarrassed by the presence of distended stomach and colon in one pleural cavity, with the collapse of one lung and encroachment on the other by displacement of the mediastinum. The heart and lungs must yield to increased pressure from the transposed hollow viscera. The volume of space in the pleural cavity which a distended stomach alone can occupy is sufficient to cause death from asphyxia. Such a case was reported by Gibson[15] of Cleveland. Precordial distress, dyspnea, cyanosis, and cough always irregular in time and severity are circulatory and respiratory manifestations of diaphragmatic hernia. Gastro-intestinal symptoms are indicated by interference with the motility of the stomach and intestine when the organs are involved in the hernia. A great variety of symptoms indicating digestive disturbances may simulate peptic ulcer, gallstones, pancreatitis, appendicitis, intestinal stasis and obstruction. A dextrocardia often serves as a key to the diagnosis.

151 Rock Street.

15. Gibson, F. S.: Diagnosis of Diaphragmatic Hernia with Acute Obstruction, J. A. M. A. **93**: 1719 (Nov. 30) 1929.

The Galvanic Current.—According to Turrell, the therapeutic effect of the galvanic current is due simply to the heat generated in the tissues and the increased functional activity from the bombardment of the tissue cells.—Shaffer, L. W.: *Arch. Dermat. & Syph.*, February, 1931.

SYMPATHETIC RAMISECTION IN SPASTIC PARALYSIS

END-RESULTS OF SIXTY CASES *

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Influenced by the clinical results and the very plausible explanation of sympathetic release, reported by Royle [1] and supported by Hunter,[2] my colleagues and I have performed ramisection for spastic paralysis in a sufficient number and variety of cases to make a report of them of some value in arriving at a proper estimate of the operation.

Included in this study are eighty-three ramisections: twenty-three cervical and sixty lumbar, with twenty-five left, fifteen right and eleven bilateral. The first analysis was based on the comparative study of a group of operations done in 1925, including twenty lumbar and four cervical operations; another in 1926 and 1927 with sixteen lumbar and six cervical, and a third group in 1928 with twelve lumbar and thirteen cervical operations.

In 1925 the indications specified by Royle in selecting cases were followed closely and only those patients were operated on who had fair cortical control, definite increase in plastic tone, with slow joint position change and hang up reflexes. The average age was greater than in the 1927 or 1928 group. In the latter two groups the mental requirement remained the same, but the state of the muscle tone was not given consideration in the selection of cases. The operative technic was alike in the three groups and the final results were so nearly the same that grouping in this manner offers only one conclusion; namely, that increased plastic tone has no value in selecting cases for operation. This is in accord with the experience of Von Lackum.[3]

In our series there are seventeen left and fifteen right hemiplegias, eleven paraplegias, fifteen tetraplegias and two triplegias. The cervical operations were done through exposing the brachial plexus and cutting the sympathetic rami to the fifth, sixth, seventh, eighth, and first dorsal nerve roots. The stellate ganglion was not exposed at any operation. Increased warmth was noted in 40 per cent, but was never so much as present in the lumbar cases.

For the lumbar sympathetic, the trunk was exposed through a lumbar incision and the gray rami from the second through the fifth, and the trunk divided below this point. Postoperative increase in the temperature of the leg was recorded in 100 per cent of the cases. In some an increase in warmth and circulatory tone was present four years after operation. In one case, twelve months later there was an increase of one-half inch in circumference of the calf on the limb that had been operated on and, incidentally, relief during the entire period from a troublesome constipation, existing for several years, by purposely dividing the trunk at the first lumbar enlargement.

Great difficulty has been experienced in making an accurate estimate of the actual effect of ramisection on the final result when a combination of measures has been followed in treatment of the patients. Primary interest, naturally, was in improving the function of an arm or a leg and frequently the opportunity for watching the effect of ramisection alone was sacrificed by adding other operations. On several occasions a ramisection was done on one side and Stoeffel's operation on the other leg with conclusions reported relative to the comparative results. Likewise, we have done stabilization in the feet, Stoeffel's operation on both legs, and from twelve to eighteen months later a bilateral ramisection, with notes crediting each operation with a proportionate effect. The methods followed in determining results are open to criticism, because they are lacking in physiologic analysis, but from a practical application they have seemed to convince those working with the cases that a reasonably accurate conclusion may be obtained. A patient who can walk better, can step over objects, climb steps, stand on one leg, pedal a sewing machine, and do similar coordinating movements that he could not do before operation is classified as improved and is graded accordingly. While it is true that spastic children above 10 or 11 are optimistic in their attitude following any procedure, we have found that their reaction after twelve or eighteen months, combined with that of the parents and friends, coincides closely with the estimate independently made on our records.

Examinations did not reveal any difference in the character of reflexes before and after operations. Those patients having a typical hang up knee reflex had approximately the same after operation. It was not possible to observe any difference in the height of the jerk or appreciable variation in the clonus when present. There was noted, however, in cases having most improvement a relative increase in active joint range. This can be measured with fair accuracy at the knee by placing an extensoflexometer on the joint with the patient in a sitting position and measuring the degrees covered in a given length of time, controlled by a stop watch. A practical test is to have the patient move the knees through their greatest range in an easy manner ten times, and it may be found, for instance, that he moves from 160 degrees to 100 degrees ten times in ten seconds. After operation he may do from 170 degrees to 98 degrees ten times in six seconds, which shows an increased amplitude and better control of antagonistic muscles.

The record of footprints has not in our cases given any particular information. The entire appearance of the imprint can be changed by increasing or decreasing the speed of walking or otherwise instructing the patient and it has therefore seemed difficult to enforce the same conditions after operation for accurate comparison. Steindler [4] has done some work with action currents and this may prove a valuable method in making positive physiologic study on the muscles that have been operated on. There was found a change in the frequency and amplitude not observed in the normal muscle.

No change was observed in fixed contractions or in those contractions which develop on attempting motion or excitation, as in the scissor gait, equinus, or valgus in the foot. Relief of the contractions by other operations has been necessary, but it has been noted that a paraplegia of equal spasticity has better function in the leg with lumbar ramisection and section of the obturator, than with obturator section alone. Three of our

* Clinical cases from the Texas Scottish Rite Hospital; medical work from Baylor University College of Medicine.

1. Royle, N. D.: M. J. Australia **1**: 77 (Jan. 26) 1924; Surg. Gynec. Obst. **39**: 701 (Dec.) 1924; M. J. Australia **1**: 632 (April 30) 1927.
2. Hunter, J. I.: M. J. Australia **1**: 581 (June 14) 1924; Surg. Gynec. Obst. **39**: 721 (Dec.) 1924.
3. Von Lackum, H. L.: J. Bone & Joint Surg. **8**: 590 (July) 1926; Sympathetic Ramisection in Spastic Paralysis, J. A. M. A. **92**: 139 (Jan. 12) 1929.
4. Steindler, Arthur: Alteration of the Action Current of Skeletal Muscles Following Sympathetic Ramisection, J. Bone & Joint Surg. **11**: 1 (Jan.) 1929.

patients, with paraplegia were identical in deformity and gait. Hips and knees were flexed, the feet were in valgus, there was moderate equinus, and they walked poorly with a labored, shuffling gait. This type is fairly common and the posture is due more to muscle weakness than to contractures. Ramisection in these cases was of no value, although a bilateral operation was done in one of them.

Contrary to the experience of Von Lackum [3] and Stewart,[5] we have never observed an appreciable improvement immediately after the operation. The patients were frequently kept several weeks in the hospital before being sent to the gymnasium, and there is no record of favorable changes before exercises were started. With the advent of gymnasium work there was better response in many cases than that shown in the gymnasium during a test period before operation. In most instances the patients were given supervised exercises beginning on the tenth or fifteenth day and continued from two to three weeks. On readmission after three months they again had supervision for a few weeks, and during the first or second return admission improvement would be noted at first and would generally reach a maximum by the end of twelve or eighteen months. The work in the gymnasium undoubtedly adds a considerable measure of improvement; but it cannot be credited with all the results, for in many instances the same care and time have been given prior to operation without appreciable effect but with definite rapid improvement after ramisection. Exercises seem most effective when started some weeks after the operation. Patients are retained for training the short time before discharge, for its value during the stay at home, while waiting for the three months' period admission, when it is expected a more satisfactory training schedule may be instituted.

Twenty patients in the series had other operations, some before ramisection, a few at the same time, and others after evaluating the effect of sympathetic denervation. These operations were in the nature of multiple Stoeffel's operations or subastragaloid stabilization. Although it is difficult, one may distinguish between results following these operations and those from ramisection. In the latter case, as expressed by many of the older children, there is an added feeling of security in standing or walking. The improvement relates more to coordination and equilibrium. The range of knee motion is greater in walking. Movements in the spastic extremities are smoother and more easily carried out. In the tables indicating percentage of improvement, deductions have been made for that due to contributing operations, and in some cases, no improvement is recorded for ramisection; from 25 to 40 per cent is elsewhere credited to these operations. Likewise, there are some with a slight percentage for ramisection and are elsewhere given a higher percentage of improvement for gymnasium training.

From our experience with the treatment of spastic paralysis, were it necessary to choose between ramisection and Stoeffel operations with foot stabilization, the latter two procedures would be regarded as meeting more indications and giving a higher percentage of improvement in a large group of cases. It is our purpose, however, to credit ramisection with whatever of value there may be in it, and to that end groupings have been made for analysis of certain factors that may influence the result of operations.

5. Stewart, S. F.: End-Results of Ramisection in Spastic Paralysis, J. Bone & Joint Surg. **9**: 724 (Oct.) 1927.

It must seem obvious that any operation designed to cut the pathways of unfavorable impulses to voluntary muscles should be carried out before excessive damage has been done. Von Lackum recognized that ramisection at an early age, before the pattern of deformity had been established, gave better results than the same operation done late. In our series, the lumbar cases grouped according to the age at the time of operation gave the results shown in table 1.

TABLE 1.—*Percentage of Improvement Following Ramisection*

Number of Cases	Age	Mentality	Percentage of Improvement
16	5 to 7	71	16
10	8 to 10	74	14.5
18	11 to 13	73	23.5
7	14 to 17	70	20

Before making any interpretations from this table, it will be interesting to know whether the figures are influenced by other factors.

The groups presented in table 2 suggest, at least, that the age of the patient and the type of plegia are of less significance than severity of the lesion and mental development. Of the fifty-one cases with sixty-two lumbar operations, the average gain is 16 per cent. In fourteen cases, no gain is recorded and twelve cases had 25 per cent or more. A detail of these two groups is illuminating (table 3).

TABLE 2.—*Factors Influencing Improvement*

Number of Cases	Type of Deformity	Average Age	Mentality	Gain, per Cent
25	Left hemiplegia	9½	72	15
15	Right hemiplegia	9¾	75	12
11	Paraplegia and tetraplegia	12	75½	32

One must conclude from analysis of these cases that severity of physical disability and the mental development are the two important factors influencing the progress after operation. It is recognized that extreme disability is always more difficult to influence favorably in treatment, but if ramisection produces results by release of impulses affecting striated muscle, even in severe cases with poor cortical control, there should be some evidence of changed reactions. None were observed in the fourteen cases of this group. It is noteworthy to observe a high percentage of improvement in cases having ramisection on both sides. There is apparently an added value to the first. No effect, however, was apparent in the leg that had been operated on when a cervical operation was done, nor to the arm when a later operation was done on the lumbar sympathetic. In twelve cases, ganglionectomy was substituted for ramisection and comparison showed slightly better results.

TABLE 3.—*Comparison of Cases Showing Gain and Those Not Showing Gain*

	Age	Mentality	Gain
No gain (14 cases)	9½	63¼	
Above 25 per cent gain (12 cases)	10¾	81¼	41⅝

The twenty-three cervical cases have been disappointing in general results. At operation the rami were clearly exposed and avulsed. The stellate ganglion was not removed nor was any attempt made to find the branch, from below joining the first dorsal, as described by Kuntz.[6] The postoperative temperature was slightly

6. Kuntz, Albert: Distribution of the Sympathetic Rami to the Brachial Plexus, Arch. Surg. **15**: 871 (Dec.) 1927.

raised in ten, was marked in three and was not appreciable in ten cases. Eleven cases were not improved by operation, six showed from 10 to 15 per cent and five showed from 25 to 40 per cent improvement. The poor results in this group may come from imperfect operative technic or may be influenced by inadequate postoperative gymnasium work. The latter is true, it might be argued, because, after all, most of the good results are due to enthusiastic postoperative training; but it is not in accord with the unprejudiced study made of this series during the past five years.[6a]

The improvement has not been great and may be duplicated by other measures, yet there is something definitely useful in ramisection which may be added to but not substituted for other procedures in the treatment of spastic paralysis. From 10 to 25 per cent improvement would not appeal to one treating most chronic disabilities, but one is thankful for small figures in spastic paralysis.

TABLE 4.—*Detailed Data in Cases Not Showing Improvement*

Age	Type	Physical Incapacity	Mentality
12	Right hemiplegia	Severe	60
4	Right hemiplegia	Severe	60
5	Right hemiplegia	Severe	65
8	Left hemiplegia	Severe	70
10	Left hemiplegia	Moderate	70
5	Tetraplegia	Severe	50
8	Tetraplegia	Severe	60
14	Tetraplegia	Severe	60
12	Tetraplegia	Severe	55
10	Tetraplegia	Moderate	60
5	Tetraplegia	Severe	65
7	Paraplegia	Moderate	60
18	Paraplegia	Severe	80
16	Paraplegia	Severe	50

TABLE 5.—*Detailed Data in Cases Showing Excessive Gain*

Age	Type	Physical Incapacity	Mentality	Gain, per Cent
12	Left hemiplegia	Moderate	70	30
5	Left hemiplegia	Moderate	90	40*
11	Right hemiplegia	Moderate	75	50
13	Paraplegia	Severe	90	50*
10	Paraplegia	Moderate	90	50*
12	Paraplegia	Moderate	90	40*
7	Paraplegia	Moderate	95	35
6	Paraplegia	Moderate	80	40
17	Paraplegia	Moderate	90	50
10	Tetraplegia	Severe	70	40
13	Tetraplegia	Moderate	65	35*
12	Tetraplegia	Moderate	70	40*

* Bilateral.

EXPERIMENTAL WORK

Operation.—In the early part of 1927, in conjunction with Dr. Fred T. Rogers, physiologist at Baylor University College of Medicine, an attempt was made to duplicate the work of Royle. Six goats were operated on by removal of the left sympathetic trunk, and to obviate any chance of error through irritability about the lumbar muscles from scar tissues, each goat was operated on thirty days later on the right side, to the extent of exposing the sympathetic trunk but not touching or otherwise damaging it.

Observations.—After recovery from operation, no limp or other variation in behavior was noted. At the second operation one month later, during the process of anesthetizing, rigidity was studied, but was so variable in character that it was impossible to note any constant difference in the extremities. Decerebration by transection was done at varying intervals of 60 to 120 days after ramisection. It was found that marked variation existed in the character of rigidity. Two specimens exhibited identical changes at the examinations, described in Royle's experiments. One had just the opposite reaction; the leg on the side operated on remained rigid and the mate was more flaccid and fell quickly from the position imposed on it. The other three varied in reaction at each of several examinations and could be influenced by posture of the head or changing body position. The observation period covered from three to twelve hours. Postmortem examinations confirming the completeness of sympathetic removal were done in all animals. The conclusion was that, on goats, previous sympathectomy does not influence the rigidity or decerebrate specimens.

This was not in accord with the experiments that formed the basis of Royle's clinical work, which was shown so convincingly to American surgeons a few years ago. His clinical results and those later of Von Lackum and Stewart are notably good, though the explanation for it appears to be erroneous. Sherrington,[7] in a study of decerebrate specimens, has described the lengthening and shortening reactions in muscle whereby it maintains any constant length against varying tension. Sherrington[7] found that the reflex for this tonic contraction existed in the muscle and termed it the myotatic reflex. He thought it was controlled by a somatic efferent impulse and not by the sympathetic, as believed by Langlaan,[8] de Boer,[9] Royle and Hunter. This holding mechanism, proved in smooth muscle and suggested for skeletal muscle by Fröhlich and Meyer[10] and by Plaut,[11] is accepted by Hunter, who regards it as plastic tone and through sympathetic control as responsible for the shortening and lengthening reactions of Sherrington. Boeke,[12] Garven,[13] and Coats and Tiegs[14] have disproved this theory. Muscle shows a marked initial resistance when stretched from any given position, and with increase in stretching there is less resistance developed. This element of tone, studied by Rieger[15] and Spiegel,[16] is called the brake mechanism and was found to be influenced by the sympathetics in the work of Kuntz and Kerper.[17]

Forbes and Cobb[18] and others are convinced that the entire phenomenon of muscle tone can be explained by the phasic reactions in the simple muscle twitch built up by rhythmic contractions, and they see no reason for dividing muscle tone into two elements, plastic and contractile. They, with Pollock, Kanavel and Davis,[19] were unable to find any sympathetic influence on muscle tone.

The other view on tonic contractions held by some investigators is that a passive state of contraction is superimposed on the ordinary muscle contraction. In this tonic contraction there is diminished or absent action currents and absence of fatigue. Those accepting

6a. Section of the cervical trunk below the stellate ganglion in recent cases has given temperature changes in all cases and better results. The technic is described by Royle, N. D.: Sympathetic Trunk Section, M. J. Australasia **2**: 436 (Oct. 6) 1928.

7. Sherrington, C. S.: J. Physiol. **17**: 211, 1894.
8. Langlaan, J. W.: On Muscle Tonus, Brain **45**: 434, 1922.
9. De Boer, S.: Arch. f. d. ges. Physiol. (Pflüger's) **190**: 41, 1921.
10. Fröhlich, A., and Meyer, H. H.: Zentralbl. f. Physiol. **26**: 269, 1912, quoted by Coats and Tiegs.
11. Plaut, R.: Arch. f. d. ges. Physiol. (Pflüger's) **202**: 411, 1923, quoted by Coates and Tiegs.
12. Boeke, J.: Ztschr. f. mikr. anat. Forschung **8**: 561, 1927.
13. Garven, H. S. D.: Brain **48**: 380 (Sept.) 1925.
14. Coates, A. E., and Tiegs, O. W.: The Influence of the Sympathetic Nerves on Skeletal Muscle, Australian J. Exper. Biol. & M. Sc. **5**: 9 (March) 1928.
15. Rieger: Untersuchungen über Muskelzustände, Jena, 1906, quoted by Coates and Tiegs.
16. Spiegel, E. A.: Ztschr. f. ges. Neurol. u. Psychiat. **81**: 517, 1922, quoted by Coates and Tiegs. Spiegel, E. A., and Sternschein, E.: Arch. f. d. ges Physiol. (Pflüger's) **192**: 115, 1921, quoted by Coates and Tiegs.
17. Kuntz, A., and Kerper, A. H.: Am. J. Physiol. **76**: 121 (March) 1926.
18. Forbes, Alexander; and Cobb, Stanley: Physiology of Sympathetic Nervous System in Relation to Certain Surgical Problems, J. A. M. A. **86**: 1884 (June 19) 1926. Cobb, Stanley: Physiol. Rev. **5**: 518, 1925.
19. Kanavel, A. B.; Pollock, L. J., and Davis, L. E.: Experimental and Clinical Experiences with Sympathectomy in Spastic Paralysis, J. A. M. A. **83**: 1615 (Nov. 15) 1924.

this view are not in agreement with regard to sympathetic influence. The preponderance of evidence favors subservance of muscle tone through spinal pathways, and not under sympathetic control, irrespective of basic differences in conception of muscle tone.

Coats and Tiegs repeated the experiments of Royle and Hunter on fowls and goats and could not corroborate their results, but they did find that muscles deprived of sympathetic control were much more easily fatigued than the normal muscle. This is in accord with the work of Gruber,[20] who was able to stimulate fatigued muscle with epinephrine, and of Orbelli,[21] who could do the same by stimulating the sympathetic supply to the muscle. It is established that skeletal muscle has a dual nerve supply, spinal and sympathetic. There is a marked variance in opinion as to the nature of tonic muscle contractions, but the mass of evidence favors somatic and not sympathetic nerve influence controlling it. Exceptions to this are found in the work of Kuntz and Kerper, experimenting with dogs, which corroborates some of the work done by Royle and Hunter. The most definitely proved factor of the sympathetic relation to skeletal muscle is shown in the work of Gruber, Orbelli, and Coats and Tiegs regarding its influence on fatigability. If the sympathetic function is to conserve the strength in muscle and prevent fatigue, the prolonged irritability from continuous impulses could conceivably result in a state of contraction, which might influence unfavorably the existing disability in spastic paralysis.

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RATIONALIZING THE SURGERY OF THE SYMPATHETIC NERVOUS SYSTEM *

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In 1878 Claude Bernard[1] called attention to the remarkable constancy of body fluids and predicted that the delicate adjustments necessary for the maintainance of internal harmony and economy must be dependent on nervous regulation. Today that prediction promises fulfilment. In spite of the present confused state of knowledge in this new field of study, evidence is accumulating that in the region of the hypothalamus [2] there are visceral centers exerting a control over water balance, the metabolism of fats and sugars, vascular adjustments (perhaps even the activities of capillaries and sweat glands), regulation of temperature, and a balanced control of glandular secretions and smooth muscle tonus changes in the internal organs. Evidence is accumulating to indicate that the visceral nervous system, which is the intricate network of neurons by which these activities are affected, regulates and, in turn, is affected by the p_H of body fluids; influences and expresses the activity of certain glands of internal secretion; controls the mobilization of leukocytes and other cytologic defense mechanisms; has some relation to the formation of antibodies, and is important in those changes associated with protein sensitization and anaphylactic shock.

Further, it is known that this system is capable of abnormal activity in any of its several divisions and that the upsetting of the delicate internal balance which follows this disturbance of function may provide the underlying cause or at least prove a contributing factor in the development of certain clinical syndromes, such as thyrotoxicosis, diabetes and peptic ulcer.

THE VISCERAL NERVOUS SYSTEM

The visceral nervous system is an elaborate and complicated network of neurons over which are conveyed impulses to and from brain and spinal centers that affect the function of glands and smooth muscle in all parts of the body. It is made up of two primary divisions; the craniosacral, or parasympathetic, division and the thoracolumbar, or sympathetic, division. These two divisions appear to be antagonistic to each other and maintain normal function in the organs they supply by a delicately balanced control.

At the present time, interest centers in the sympathetic division. There are numerous reasons for this: first, the evidences of overactivity of portions of this division are coming to be recognized; second, its peripheral pathways are relatively accessible to surgical attack; finally, no dangerous after-effects have been noted following surgical removal of parts of this division.

THE SYMPATHETIC NERVOUS SYSTEM

Arising from cells in the lateral column of gray matter in the spinal cord from the first thoracic level above to the second lumbar level below are neurons termed "preganglionic neurons," over which must pass all those impulses expressing the functions of the "lumbodorsal outflow" which are termed the sympathetic nervous system. The fibers of these preganglionic neurons leave the cord by the anterior roots and enter the sympathetic chain of ganglions by way of the white rami communicantes, where they turn upward or downward for varying distances to end in a sympathetic ganglion. Here they are in synaptic relation to postganglionic neurons which leave the primary chain to pass by devious pathways to the smooth muscle or gland that they supply. The postganglionic neurons that supply visceral tissues in peripheral parts of the body turn back from the ganglionic chain by way of the gray rami communicantes to join the spinal nerves and from them are distributed segmentally to the blood vessels, sweat glands and erector pili muscles.

POINT OF SURGICAL ATTACK

The ideal sympathectomy would consist of a selective division of all the postganglionic neurons that supply a particular part of the body. In the case of an internal organ the pathways of these neurons is so complicated that it is customary to interrupt them surgically near the organ itself. A partial sympathectomy is accomplished by stripping off the plexus of fibers around the main artery of supply to the organ. Such a procedure doubtless also interrupts parasympathetic fibers and has the added disadvantage of being an incomplete denervation.

In the case of sympathectomy for an extremity the problem is still more complex. It is obviously impossible to divide sympathetic neurons after they have

20. Gruber, C. M.: Am. J. Physiol., 1914; **61**: 475 (Aug.) 1922; **62**: 438 (Nov.) 1922; J. Pharm. & Exper. Therap. **23**: 335 (June) 1924.
21. Orbelli, L.: J. Petrograd M. Inst. **6**: 8, 1923.

* Read before the North Pacific Surgical Society, Tacoma, Wash., Dec. 5, 1930.

1. Bernard, Claude: Leçons sur les phénomènes de la vie communs aux animaux et aux végétaux, Paris, Balliere **1**: 111, 1878.
2. Bard, P.: The Central Representation of the Sympathetic System, Arch. Neurol. & Psychiat. **22**: 230 (Aug.) 1929. Bailey, Percival; and Bremer, Frederic: Experimental Diabetes Insipidus, Arch. Int. Med. **28**: 773 (Dec.) 1921. Camus, J.; Roussy, G., and LeGrand, A.: Etude anatomo-pathologique des lésions expérimentales provoquat le syndrome adiposo-génital chez le chien, Compt. rend. Soc. de biol. **86**: 1070, 1922. Penfield, Wilder: Diencephalic Autonomic Epilepsy, Arch. Neurol. & Psychiat. **22**: 358 (Aug.) 1929.

reached the spinal nerves. A partial sympathectomy is accomplished by periarterial sympathectomy, or the removal of a short portion of the artery. These procedures may have limited indications but are objectionable because of the very incomplete denervation that results and the impermanence of the result. A more complete division can be accomplished by cutting the gray rami, but the usual operation consists in excision of sympathetic ganglions so as to prevent impulses from the preganglionic neurons reaching the postganglionic. The chief objection to this operation lies in the fact that large areas beyond the part selected for denervation are robbed of their sympathetic supply.

Thus, the removal of the upper two thoracic sympathetic ganglions for the cure of Raynaud's syndrome affecting an upper extremity also affects the head and neck and important thoracic viscera. The customary excision of the second, third and fourth lumbar ganglions in the treatment of lesions involving the lower extremity affects pelvic and lower abdominal viscera as well.

The advantage of these two operations is that they result in a more complete interruption of sympathetic pathways than can be secured by other procedures, and in the cases treated in this fashion no serious after-effects have been observed.

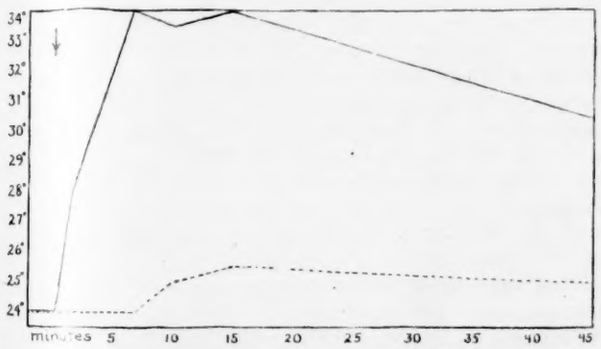

Chart 1.—Skin temperature after injection with procaine hydrochloride, in Miss G. R., aged 23, with chronic arthritis: solid line, left toe; broken line, right toe; constant temperature reading, 30 C. (86 F.); needle reading, —5. In the charts the time of injection is indicated by an arrow.

SURGICAL TREATMENT OF CLINICAL SYNDROMES

The earliest operations performed on the sympathetic nervous system for the relief of asthma, exophthalmic goiter and angina pectoris have fallen short of expectation in their results. They demonstrated, however, what has been recently clearly indicated by the work of Cannon,[3] that visceral tissue is capable of continuing a fairly normal function even in the absence of portions of the sympathetic chain.

More recently Royle [4] has advocated sympathectomy for spastic conditions of skeletal muscle. I think it may be said that in this particular field the results have again fallen short of what has been hoped. There have been cases that have shown clinical improvement after operation, but results have not been constant and Royle's interpretation of his results have not been accepted by physiologists.

At the present time many of the best surgeons are attacking a wide variety of clinical syndromes by sympathetic ganglionectomy. The diseases so treated make up a surprisingly heterogeneous assembly, yet analysis reveals certain common characteristics that permit of an approximate classification into three groups.

In group 1 are listed those syndromes in which the visceral pain is the major characteristic:

1. Angina pectoris.
2. Painful amputation stumps.
3. Tabetic crises.
4. Causalgia.
5. Inoperable carcinoma.
6. Dysmenorrhea (?)
7. Gastralgia (?)
8. Trigeminal neuralgia (?)
9. Nephralgia (?)

In group 2 occur those gastro-intestinal disturbances which it seems reasonable to ascribe to overactivity of the sphincter muscle:

1. Hirschsprung's disease.
2. Pyloric stenosis.
3. Intussusception.
4. Cardiospasm.
5. Globus hystericus (?)
6. Spastic constipation (?)

In group 3 are found a variety of clinical syndromes whose single striking characteristic is a functional limitation in blood supply:

1. Raynaud's disease.
2. Scleroderma.
3. Acrocyanosis.
4. Chronic arthritis.
5. Chronic ulcerations.
6. Spastic paralyses.
7. Endarteritis.
8. Retinitis pigmentosa.
9. Vulvar kraurosis.

A WORKING HYPOTHESIS

I have long contended [5] that spasm of smooth muscle of blood vessels is capable of giving rise to pain in exactly the same way that spasm of smooth muscle of the gastro-intestinal, urinary and biliary tracts may furnish adequate stimuli for pain. It seems to me to be probable that angina pectoris, causalgia, the pain associated with Raynaud's disease and certain cases of painful amputation stump may all be due, either directly or indirectly, to abnormal changes in tonus of blood vessels.

If, then, it is possible to explain the pain syndromes as due to abnormal tonus of vessels, the gastro-intestinal group to overaction of sphincters, and the third group to reflex diminution in blood supply, it is immediately apparent that all three groups have a single common characteristic—spasm or hypertonus of smooth muscle.

Physiologists have long taught that one of the primary functions of the sympathetic nerves has been to subserve tonus of smooth muscle and are coming to recognize that in human beings an overactivity of certain parts of the sympathetic nervous system may be expressed as spasm or hypertonus of smooth muscle. Thus there is a physiologic explanation of these apparently heterogeneous clinical syndromes, and a logical answer as to why sympathectomy may result in improvement. While my own experience has been limited, those cases I have seen which appear to have been benefited by sympathectomy show results that may be reasonably explained as due to a release of hypertonus or spasm of smooth muscle. Doubtless there will be

3. Cannon, W. B.; Newton, H. F.; Bright, E. M.; Menkin, V., and Moore, R. M.: Some Aspects of the Physiology of Animals Surviving Complete Exclusion of Sympathetic Nerve Impulses, Am. J. Physiol. **89**: 84 (June) 1929.

4. Royle, N. D.: Treatment of Spastic Paralysis by Sympathetic Ramisection, Surg. Gynec. Obst. **39**: 701 (Dec.) 1924.

5. Livingston, W. K.: The Blood Vessels as a Possible Source of Visceral Pain, Am. Heart J. **5**: 559 (June) 1930; Visceral Pain, M. Sentinel **38**: 128 (March), 157 (April) 1930.

found exceptions to such a sweeping statement; but, until it is possible to ascribe to the sympathetic nervous system functions that the physiologist is not now able to credit it with possessing, it seems that this simple explanation should be adhered to.

CHRONIC ARTHRITIS

The characteristic functional limitation in blood supply said to be common to group 3 is not always immediately apparent. At first glance, chronic arthritis might appear to be an exception. However, close study of patients with chronic arthritis reveals that many of them exhibit cold, pale and clammy extremities in addition to the arthritic changes. It is true that there are cases of this disease in which such superficial evidences of limited blood supply do not exist, but it is significant that almost without exception the cases that are benefited by sympathectomy are those in which these conditions are present before operation. That the change in the joints might also be due to a restricted blood supply has been suggested by Bankart.[6] He says: "During life the joints are not passive pieces of mechanism but living structures which react to use like other living tissues. Every functional use of a joint is in a sense an injury; that is, friction and pressure tend to wear

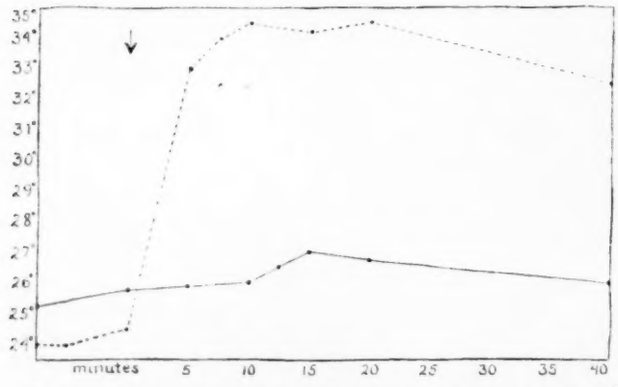

Chart 2.—Skin temperature after injection with procaine hydrochloride, in Miss M. D., aged 33, with arthritis deformans: solid line, left toe; broken line, right toe; constant temperature reading, 31 C. (87.8 F.); needle reading, — 4.5.

away the opposed articular surfaces. This normal wear is at once made good by an increase in blood supply and nutrition which always accompanies function in normal tissues; *hence the balance between wear and repair is dependent on an adequate vascular response to function.* If not balanced there is a wearing away of the surfaces, and products of degeneration give rise to irritation which makes itself evident in hypertrophic changes at the periphery where the blood supply is sufficient. Thus the characteristics of osteo-arthritis are degeneration leading to atrophy, erosion and eventual disappearance of the cartilage of the joint, and hypertrophy leading to the formation of osteophytis at the periphery."

In one of my cases of chronic arthritis in which a unilateral lumbar ganglionectomy has been performed, the circulation in the foot on the side that was operated on is so much improved that the temperature of the skin remains 8 degrees C. warmer than the other foot during exposure. With this improved circulation there has been a lessening of deformity, a return of the ability to move the ankle, which had been absent for two years, and a sense of warmth and comfort in the entire extremity. Observations of this kind would seem to confirm the hypothesis that vascular spasm is at least a contributory factor in certain cases of chronic arthritis.

ENDARTERITIS OBLITERANS

The casual observer might have even greater difficulty in understanding the relation of smooth muscle spasm to obliterative lesions of arteries. In cases of this type, attention has been so engrossed with the condition of the larger vessels that a consideration of the functional condition of the vascular bed of smaller vessels and the possibility of a concomitant vascular spasm has been relatively neglected. I am convinced that obliterative changes in an artery and a functional spasm are frequently interdependent.

When an artery is in spasm there is of necessity a slowing of the blood stream in its lumen and perhaps a limitation of blood supply to its own wall as a result of its strong contraction. Long continued or frequently recurrent spasm might well lead to degenerative changes in the wall of the artery, or conduce to an increase in obliterative lesions already present. It is of interest in this connection to note that patients suffering from Raynaud's disease usually give a history of early attacks characterized by extreme pallor, considerable pain and a satisfactory circulation between attacks. Later it is noted that the pallor is replaced by cyanosis, the attacks may be precipitated by other conditions than cold, and a more or less constant impairment of circulation is present. In these late cases, degenerative changes in the digital arteries may be demonstrable. Sir Thomas Lewis[7] considers cyanosis rather than pallor to be characteristic of Raynaud's disease and believes that the degenerative changes in the peripheral vessels are the primary cause of the attacks. Most observers, however, feel that the attacks are due to reflex disturbances and consider the changes in the vessels to be secondary or late effects.

Not only is vascular spasm conducive to organic change, but the presence of organic change may be a cause of spasm. Sudden obliteration of an artery may be followed by sudden constriction peripheral to the obstruction. Thus, in a case of embolus in a femoral artery I noted that the distal portion of the artery was contracted to a firm, pale, cord-like state. Dr. Charles Lund of Boston tells me that in four cases of arterial embolus for which he has performed an embolectomy the artery was in spasm beyond the obstruction in each case and that observation of the leg after operation seemed to indicate that the spasm persisted for some time after the embolus was removed. It is difficult to explain such observations unless it be assumed that the presence of the obstruction or a sudden ischemia of the vessel wall results in a reflex spasm. Anything that interferes with the nutrition of the vessel musculature may lead to spasm, and it is reasonable to assume that lesions in the lumen of arteries may be a cause for an associated spasm or hypertonus. Whether or not this assumption is accepted, the fact remains that many cases of obliterative disease of the arteries show an additive element of spasm. Of course, there are cases that have only obliterating lesions present, but these cases do not yield to sympathectomy. It is only those cases of endarteritis in which vascular hypertonus or spasm is present that the surgeon feels justified in submitting to operation. The problem that confronts the surgeon is how to differ-

6. Bankart, A. S. B.: Chordotomy in the Treatment of Osteo-Arthritis of the Hip, Lancet **2**: 378 (Aug. 24) 1929.

7. Lewis, Thomas: Experiments Relating to the Peripheral Mechanism Involved in Spasmodic Arrest of the Circulation in the Fingers: A Variety of Raynaud's Disease, Heart **15**: 7 (Aug.) 1929.

entiate and estimate the relative importance of these two factors in a given case.

Sympathetic ganglionectomy is a major procedure requiring precision and skill. Before submitting his patient to this procedure the surgeon must be convinced that the patient will withstand a major operation and, in addition, must conscientiously attempt to answer three questions:

1. How much reflex vascular spasm is present in this case?
2. What ganglions must be removed to release the vessels involved?
3. Have organic changes progressed to a degree that will obviate a good result?

METHODS TO OBTAIN A PROGNOSIS

Before seeking an answer to these questions it is of interest to note that most of the patients in this field of surgery seek symptomatic relief by the use of local heat. They usually state that their local lesions and symptoms improve during attacks of fever. Experience has further taught that any method favoring hyperemia may prove of benefit. This may be achieved by counter-irritation, local heat, constrictive hyperemia treatment, protein shock, spinal anesthesia, natural sleep or general anesthesia.

These observations suggested two methods for obtaining a prognosis. The first method is known as "oscillometry."[8] A rubber cuff placed around the involved extremity at various levels is inflated sufficiently to transmit pulse oscillations to a movable needle or a pen writing on a revolving paper disk. Cases with vascular spasm may show an abnormal restriction in the amplitude of pulse oscillation, particularly after exposure to cold. A marked increase in the swing after a hot bath is interpreted as indicating that the vessel is capable of dilatation and argues against advanced occlusive disease. This method has many faults, chief among which is the fact that it measures only the changes in the large vessels and gives no information as to the functional condition of the vascular bed. It is of limited value.

A better method is the so-called fever test.[9] This consists in the production of an artificial fever by the injection of typhoid vaccine or antigen and the accurate measurement of changes in mouth and local skin temperatures. The rise in skin temperature of the involved extremity is divided by the rise in mouth temperature to obtain a "vasomotor index." Thus a patient showing a rise of 12 degrees in the temperature of a toe during fever, while in the same interval the mouth temperature rose 3 degrees, would be said to have a vasomotor index of 4. A high vasomotor index is interpreted as indicating a considerable element of vascular spasm and favoring operation, while low values indicate advanced occlusive disease in which operation is contraindicated.

METHOD OF CHOICE

The best method consists in the observation of the changes that follow the selective injection of sympathetic ganglions with procaine hydrochloride. In applying this method, accurate measurements of the skin temperature of the involved extremity are taken with a thermocouple. Then an injection of procaine solution is made in the region of the ganglions that are suspected of conducting the impulses responsible for the vascular spasm. An accurate injection should produce a temporary block which simulates the effect that may be expected from surgical extirpation of these ganglions. A rapid and marked rise in peripheral skin temperature indicates that spasm has been present and shows that the vessels are capable of dilatation. In the presence of advanced obliterative lesions in which there is relatively little hypertonus of vessels, the rise is slight and slow in making itself evident. This method not only gives reliable information as to the condition of the vessels but indicates the exact point for surgical attack.

In cases in which pain is the major characteristic, it is possible to differentiate visceral pain from somatic pain by this method of direct injection. Relief from pain following injection is a definite indication that the surgical interruption of these pathways will afford lasting relief. Failure to relieve the pain indicates either that the injection was improperly made or that the pain impulses do not follow these sympathetic pathways.

In cases of chronic arthritis I have found this method of great value. The accompanying charts represent the skin temperature curves of certain of these cases after injection with procaine hydrochloride. In each instance in which ganglionectomy was later performed the skin temperature of the side that was operated on has

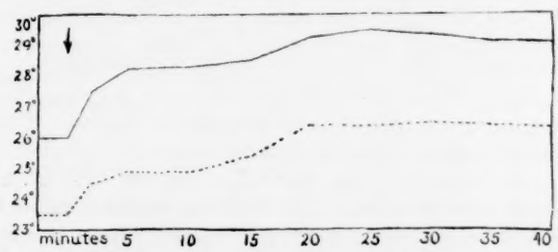

Chart 3.—Skin temperature after injection with procaine hydrochloride, in Mr. J., with endarteritis obliterans: right toe (indicated by solid line) involved; constant temperature reading, 30 C.; needle reading, — 6.

remained permanently elevated, closely approximating the maximum rise obtained during the preoperative test. In contrast charts indicating a great deal of vascular spasm, a final chart is presented to show the slow and limited rise in temperature that results from injection in a case of advanced endarteritis obliterans. Any such curve as this contraindicates operation.

SUMMARY

An attempt has been made to classify the varied group of clinical syndromes for which sympathetic ganglionectomy has been advocated. On the basis of previous work, it is contended that pain impulses may arise from abnormal changes in tonus of peripheral blood vessels and it is suggested that spasm of the smooth muscle of vessels may account for many of the diseases classed in the group of visceral pain syndromes. The group of gastro-intestinal disturbances may be explained as due to hypertonus of sphincter muscle, and for the third group it has been suggested that there is a common characteristic of functional limitation in blood supply. It seems probable, therefore, that smooth muscle hypertonus or spasm is a common characteristic of all the syndromes under discussion. Such a concept furnishes a working hypothesis which conforms with our present physiologic knowledge and affords a rational explanation for the beneficial results obtained by sympathectomy.

8. Buerger, Leo: Oscillometry, in Nelson's Living Surgery **3**: 770.
9. Adson, A. W.: The Surgical Indications for Sympathetic Ganglionectomy and Trunk Resection in the Treatment of Diseases Resulting from Vasomotor Spasm of Peripheral Arteries, Bull. New York Acad. Med. **6**: 17 (Jan.) 1930. Adson, A. W., and Brown, G. E.: Thoracic and Lumbar Ganglionectomy in Peripheral Vascular Diseases, J. A. M. A. **94**: 250 (Jan. 25) 1930; Physiological Effects of Thoracic and of Lumbar Sympathetic Ganglionectomy or Section of the Trunk, Arch. Neurol. & Psychiat. **22**: 323 (Aug.) 1929.

The best method for obtaining a reasonably accurate estimate of the benefit that may be expected to follow sympathectomy consists in the selective injection of ganglions with procaine hydrochloride. The method is not particularly dangerous or difficult, and it accurately reduplicates for a short period the condition that may be expected to obtain more permanently after surgical excision of particular ganglions. It affords a method for differentiating somatic from visceral pain and, of more importance, should prove of great value in enlarging the field for the application of this new type of surgery.

1206 Stevens Building.

Special Articles

THE INDISPENSABLE USES OF NARCOTICS

INTRODUCTION

MORRIS FISHBEIN, M.D.
CHICAGO

For many years, physicians have had to meet the charge that they were responsible to a considerable extent for cases of drug addiction through the unnecessary prescribing of narcotics, through the prescribing of narcotics over a long period of time when a short period would have sufficed, through the prescribing of proprietary remedies containing narcotic drugs without appreciating the presence or amount of narcotic drugs present, through failure to use substitutes for narcotics on some occasions, and, indeed, even for having consciously prescribed narcotics for those addicted and who might have been controlled in some other manner. Obviously physicians must take responsibility for some drug addiction. These articles are planned to diminish as far as possible the cases for which physicians may be blamed.

One of the chief difficulties in the control of drug addiction is the absence of actual knowledge concerning the number of drug addicts, the causes of drug addiction and the methods of its promotion. There seems to be no doubt that the vigorous enforcement of the Harrison Narcotic Act has resulted in a lessening of narcotic addiction. It is the opinion of the Commissioner of Narcotics, who is responsible for narcotic law enforcement, that the control of legal importation, manufacture and distribution seems to be reasonably effectual. He says, furthermore, that the quantity of narcotic drugs of domestic manufacture that is diverted to illicit use is so comparatively negligible as to give no cause for alarm.

Dr. W. L. Treadway of the U. S. Public Health Service is convinced that the first factor in drug addiction is ease of access to the drug. From the experience of the Division of Mental Hygiene of the Public Health Service, Dr. Treadway believes that the immediate or precipitating causes of addiction may be for convenience divided into: first, previous use of drugs in medical treatment; second, self-treatment for relief of pain; third, recourse during emotional distress; fourth, influence of other addicts, both in the community and in prison; and, fifth, indulgence for the sake of curiosity, thrill, or bravado. Among 1,225 addicts where the cause for addiction was known, 23 per cent were due to previous use of drugs in medical treatment, 17 per cent to self-treatment for relief of pain, and 52 per cent to the remaining three causes that have been mentioned.

Addiction is more readily induced in some persons than in others. "The most important predisposing cause," says Dr. Treadway, "is an inherent mental or nervous instability. On the one hand there is the normal individual, on the other the frank or gross mental disorders, and in between a large group who have been designated as a temperamental type, but who are in reality suffering from the psychoneuroses or dementia praecox type of disorder. Evidence is at hand, however, to show that addiction may be induced by the injudicious use of drugs in persons apparently free from any nervous or mental instability, and conversely, that due care in administration may avert this result even in the unstable."

The report of the Advisory Committee in Traffic in Opium and Other Dangerous Drugs of the League of Nations, published in November, 1930, indicates that only a small proportion of the narcotic drugs manufactured in the United States is clandestinely used for nonmedical purposes, and that considerable amounts of morphine, heroin and cocaine are being smuggled into the United States on the East coast and large quantities of prepared opium on the West coast. A careful consideration of the available reports and studies indicates that there are not more than a hundred thousand drug addicts in the United States at the present time. As an indication of the extent of such illegal traffic during the year July 1, 1927, to July 1, 1928, there were seized 3,718 pounds of opium, 5,048 ounces of morphine, 9,305 ounces of heroin and 1,122 ounces of cocaine. For the year ended June 30, 1930, there were seized 23,948 ounces of various narcotic drugs and preparations. It is thus apparent that the physicians are by no means responsible for all the narcotic addiction and that the problem is largely a police problem as well as a medical one. Notwithstanding this fact, it is the duty of every physician to limit the prescribing of narcotic drugs to cases in which the prescriptions are essential, and in which, after due thought, he is convinced that no other drug will suffice.

The problem in the United States is not more serious than in some other parts of the world. America, however, uses more narcotics for medicinal purposes than any other country. According to W. E. Dixon, America requires 245 mg. of morphine per capita; Europe, 152 mg.; Asia, 8 mg., and Africa, 24.5 mg. Professor Dixon suggests that it is possible that Americans are more sensitive to pain than people of other countries. An investigation of the number of women who required narcotics during childbirth shows America, 70 per cent; Great Britain, 50 per cent; Spain and Russia, 5 per cent.

All sorts of schemes have been suggested for controlling more certainly the manufacture and use of narcotics. The United States has a greater border to patrol than any other nation, so that the prevention of smuggling is much more difficult.

The problem of narcotic addiction merits the attention of physicians for many reasons. The control by statute of the prescribing of alcohol, and the definite limitations of the amount prescribed, indicates that the medical profession must do everything possible to minimize the prescribing of narcotics in order to make unnecessary further restrictive measures. Physicians should give more serious consideration to the materia medica, pharmacology and therapeutics of narcotics.

Physicians may, by the exercise of more thought in practicing, do much to avoid censure in relation to narcotic addiction. They may substitute, whenever possible, non-habit-forming drugs in the place of morphine or other opium alkaloids. When narcotics are indispensable, however, as shown in this series of articles, no more should be administered than is necessary to achieve the desired end. Patients requiring daily administration should be seen often by the doctor and the amount of drugs ordered or supplied should not exceed that required by the patient until seen again. Independence of administration on the part of nurses should be strictly limited to prescription and any change in treatment should be in writing.

The patients should never be informed of the nature of the drug used, nor of the dose of drug administered. The patient should never be permitted to administer the drug hypodermically to himself. Use of the drug should be discontinued immediately when no longer required, and if craving has resulted, close supervision and appropriate treatment should be maintained until the patient has been rendered independent of the drug.

The National Research Council is attempting to solve the problem in several ways. It is promoting research with a view to finding some synthetic preparation derived from opium which will have all the qualities of opium and narcotics without the tendency to establish addiction. Believing in the importance of proper education of the medical profession, the Committee on Drug Addiction of the Division of Medical Science of the National Research Council and the Division of Mental Hygiene of the United States Public Health Service in cooperation with the American Medical Association have arranged for the preparation and publication of a series of articles on the indispensable uses of narcotics. The expense of preparation has been met through an appropriation from the Bureau of Social Hygiene, Inc. This series, after its publication in THE JOURNAL, will be republished in book form. The articles to be published include the following contributions:

The Indispensable Uses of Narcotics in Surgery. Elliott C. Cutler and John W. Holloway, Cleveland.
The Indispensable Uses of Narcotics in Medicine. Frederick Tice, Chicago.
The Indispensable Uses of Narcotics in Obstetrics and Gynecology. Joseph B. De Lee, Chicago.
The Therapeutic Uses of Narcotic Drugs. Horatio C. Wood, Jr., Philadelphia.
The Indispensable Uses of Narcotics in Local Anesthesia. Géza de Takáts, Chicago.
The Indispensable Uses of Narcotics in the Practice of Otolaryngology. Robert Sonnenschein, Chicago.
The Indispensable Uses of Narcotics in the Treatment of Coughing. Robert A. Hatcher, New York.
The Indispensable Uses of Narcotics in the Treatment of Diseases of the Gastro-Intestinal Tract. Robert A. Hatcher, New York.
Psychotherapy as a Substitute for Narcotics. R. B. Richardson, Toronto, and T. H. Weisenburg, Philadelphia.
The Abuse of Narcotics. Bernard Fantus, Chicago.
Narcotics in Proprietary Remedies. Arthur J. Cramp, Chicago.
The Legal Aspects of the Use of Narcotics. William C. Woodward, Chicago.
The Chemistry of Barbital Substitutes for Narcotics. Paul N. Leech, Chicago.

The first of these articles appears in the current issue of THE JOURNAL and the remaining articles will follow.

THE INDISPENSABLE USES OF NARCOTICS

NARCOTICS IN SURGERY*

ELLIOTT C. CUTLER, M.D.
AND
JOHN W. HOLLOWAY, M.D.
CLEVELAND

The great debt of surgery to narcotics, and especially to those drugs which from time to time create such a desire for repeated amounts that they are referred to as habit forming, is acknowledged by all surgeons. Without narcotics there could not be surgery as we understand it, nor would there be anesthesia. Even without the habit forming narcotics—cocaine, opium and their derivatives—the medical profession would find itself severely handicapped; for perhaps, above all, medicine is a merciful calling and, although it yields some specific cures, its chief reason for existence is the relief of suffering.

In order that the uses of habit forming drugs in surgery may be clearly outlined, we have decided to divide our discussion into three parts: (1) the preoperative and diagnostic period; (2) the operation with its preparatory and recovery phases, and (3) the care of patients with inoperable disorders, including those cases of cancer in which surgery is inadvisable. In the third group we are eventually led to a discussion of euphoria and its place in a civilized community, a matter only touched on here, and perhaps better and more wisely left for another discussion.

THE PREOPERATIVE PERIOD

The preoperative period should properly be spoken of as the "study period." It is the time when a proper diagnosis should be made, and, although it may necessitate innumerable tests, the outstanding requirement is that the patient during this period be kept as uninfluenced by drugs as possible. Pain is one of the chief diagnostic signs, and if the diagnostician is robbed of its significance through the careless and often too free use of morphine and its derivatives, its aid is removed. Those who have seen patients with abdominal or intracranial disease rendered so comfortable and even drowsy that all complaints have disappeared know the danger of the premature use of drugs. However, if the investigative period is indicated for the clarification of the diagnosis, it should be carried out as expeditiously as possible, for to subject a patient to continuous pain over any great period of time is a decided reflection on one's diagnostic acumen. In the excruciating pain of smooth muscle colic, as seen in patients with renal and biliary calculus, the use of morphine would seem to find full justification. In this group of disorders, however, the administration of atropine and the application of heat may prove efficacious, and this therapy deserves wider usage.

It is in the field of traumatic surgery that morphine again assumes an important rôle, and because of its

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* These articles are prepared under a plan of cooperation between the American Medical Association, the Committee on Drug Addiction of the Division of Medical Sciences of the National Research Council, and the Division of Mental Hygiene of the United States Public Health Service. Their object is to reduce the legitimate use of addiction drugs to a minimum by replacement, wherever possible, with other remedies that will accomplish the desired result. The physicians of the United States are the essential group in any such attempt and it is hoped that these articles will be useful to them in their practice. The funds for this work have been donated to the National Research Council by the Bureau of Social Hygiene, Inc.

ready availability, ease of administration and relatively certain and rapid action, it is almost indispensable. Here the likelihood of the manifestation of its one objectionable feature is reduced to a minimum. To those who went through the war as surgeons, particularly to those who worked nearest "the line," it almost seemed that military surgery would have been impossible without morphine. In cases of severe trauma this drug not only brings the necessary relief from suffering but, if shock intervenes, constitutes one of the chief therapeutic weapons. In such conditions it is our belief that morphine should be given promptly in sufficient dosage to avoid frequent repetition. The healthy adult requires morphine, 0.015 Gm., subcutaneously.

THE OPERATIVE PERIOD

It is unnecessary to emphasize the desirability of establishing such an attitude in the patient that he approaches the operative ordeal, whether it is under local or general anesthesia, with a complete lack of apprehension. Although this is the result to be sought after, needless to say it is not always obtained. However, morphine lends itself to this purpose about as readily and satisfactorily as any drug that is available at present. Possibly in the future a satisfactory substitute will be devised. As a matter of fact, some of the recently modified barbital derivatives and tribrom-ethanol prove very satisfactory as a preliminary to anesthesia. Although definite progress has been made in this respect, morphine, either alone or combined with other synergistic drugs, continues to be the most universally satisfactory type of preoperative medication. We desire, however, to emphasize our personal experience with tribrom-ethanol, although this is not yet extensive. When this drug is used in doses of about 50 mg. per kilogram, we have found that, except in cases of toxic goiter, the patient is brought to the operating room in a comfortable and almost sleepy condition. When this drug is followed by either procaine hydrochloride or nitrous oxide-oxygen anesthesia, a very satisfactory anesthesia results, although subject to the individual variation in response characteristic of all forms of alimentary medication. When larger amounts of tribrom-ethanol are employed and are supplemented by a general anesthetic, one occasionally finds that general anesthesia is sometimes induced with more difficulty because of the shallowness of the respiration. It would appear to be a particularly useful combination for patients with increased intracranial pressure for whom morphine is not only inadvisable but dangerous because of its depressant action on the already impaired medullary center. However, we recognize that one of the reputed untoward effects of tribrom-ethanol may be its action upon the respiratory center. We have found it useful for all intracranial procedures that can be carried out under local anesthesia, including avulsion of the sensory root of the gasserian ganglion in cases of tic douloureux.

The matter of local anesthesia and the dangers of cocaine have been repeatedly discussed. One of us, who is a member of the Committee on Local Anesthesia of the American Medical Association, has unhappy recollections of the dangers that follow the use of cocaine. The studies[1] made by this committee have been concerned with the immediate mortality from the use of this drug and not with the later misfortunes of addiction. It should be necessary only to repeat the conclusions of the committee: that the injection of cocaine through a needle is, in the light of present knowledge concerning the effective substitutes for this drug, absolutely inexcusable. Unfortunately, science has not yet provided a substitute that will satisfactorily produce anesthesia when placed on the conjunctiva and mucous membrane, although in the former case holocaine is quite useful. Until such a drug is forthcoming, ophthalmologists and otorhinolaryngologists must continue to use cocaine for producing anesthesia by application to surfaces. However, such surgical specialists are not excused from the rule against injecting this drug and should know that the chief toll of lives in recent years lies with those who inject cocaine for tonsillectomy.

After an operative ordeal, it is of paramount importance to reduce the discomfort of the patient to a minimum; morphine should not be spared to accomplish this end, but it should not be employed indiscriminately. Frequently the patient's discomfort may be due to quite tangible conditions, such as position, an unnecessarily tight dressing, or urinary or intestinal distention; these can be dealt with specifically rather than symptomatically by the injection of morphine, although to follow the former course necessarily involves slightly more effort on the part of those in attendance. In the first twenty-four to seventy-two hours following many major procedures, the patient should receive sufficient morphine to keep him comfortable, provided an honest effort has been made to ascertain that his discomfort cannot be corrected by some simple remedial measure. Here again, no doubt, in certain instances, other sedatives may be substituted for morphine, but in general such substitutions, with the possible exception of codeine, prove unsatisfactory. A further contraindication to large quantities of morphine after operation is that this drug might add a degree of atony to the intestines which might prove undesirable, particularly if there was a preexisting tendency in this direction. However, one may with some justification construe distention to be an effort on the part of nature at immobilization of the bowels. This possibility may find its practical application in the Ochsner regimen, advocated in the treatment of peritonitis, in which morphine almost assumes the rôle of a specific remedy. The adherents to this regimen are so numerous that one must conclude that the results have warranted their confidence in it. There are those who accept it as an excellent form of therapy but would modify it by returning morphine to the rôle of a symptomatic adjuvant, which would mean a marked diminution in the amount of morphine employed, the therapeutic indication for its usage being the same as under any other circumstances. There can be no great objection to the use of morphine during a relatively brief postoperative period, following which we are so optimistic as to believe that the patient will be relieved of his original complaint.

THE CARE OF PATIENTS WITH INOPERABLE DISORDERS

Finally, we must consider the patient with an incurable and painful disorder. Many cases of cancer present this combination, long before death is imminent. Here again, as in trauma, there can be no cavil with the use of morphine. Indeed, one can imagine that under these circumstances the fantasy, isolation and satisfac-

1. Mayer, Emil: The Toxic Effects Following the Use of Local Anesthetics, J. A. M. A. **82**: 876 (March 15) 1924; An Analysis of the Reports of Fatalities Following the Use of Local Anesthetics, with a Résumé of Recent Studies on the Subject, Including a Summary of Fourteen Additional Fatalities not Hitherto Recorded, Ann. Otol. Rhin. & Laryng. **37**: 404 (March) 1928.

tion of the morphine habit might be a just and desirable condition. Thus, when an incurable lesion becomes associated with great pain, the patient can justly look to his physician for euthanasia. It is then the physician's responsibility not only to provide it but also to regulate it in order that the maximum relief over the greatest period of time may be obtained, all of which requires no little cooperation between the patient and the physician. At the outset any one of a number of sedatives may prove somewhat useful, but ultimately, in the majority of circumstances, morphine alone will meet the requirements, although there will be great individual variation. In certain instances rhizotomy or chordotomy may be employed very effectively for the alleviation of pain, thus in some degree diminishing the necessity for the usage of large amounts of morphine.

One should also mention the other drugs, heroin, codeine and ethylmorphine hydrochloride, which have their devotees. Although ethylmorphine hydrochloride may have its uses in ophthalmology, we cannot as surgeons imagine conditions in which the prolonged use of these drugs, with the exception of codeine, would be either justifiable or desirable. There are instances when codeine can be substituted for morphine quite effectively, and one should always consider this possibility, particularly in view of the almost complete absence in this drug of any tendency to the production of addiction. When administered by mouth, it may be combined advantageously with some of the coal tar derivatives.

SUMMARY

Surgeons are concerned only with drug addiction due to cocaine and morphine. All the cases that we have seen, as well as much of the material published, lead us to look on the "addict" as an individual with a perverted and degenerate personality, although obviously certain reservations must be made. Nevertheless, our views are rather fatalistic about such personalities. Still it behooves surgeons to share in the general and desirable effort to keep habit forming drugs from such individuals. Cocaine needs no further comment. Its use is justified only in surface applications. As to morphine, we believe that from the standpoint of the surgeon it is the most valuable drug in the pharmacopeia, that it is essential in trauma and in certain very painful crises, that it should seldom be administered until a diagnosis can be made, and that in the preoperative and postoperative care of patients its use may be reduced by a proper study of substitutes.

Nephritis in Children.—Marriott stated that one of the most important and clearcut manifestations of infection in the nose and throat of children is tubular and glomerular nephritis. He also stated that nephritis is invariably associated with infection, and most frequently with infection of the nose and throat. In practically all cases of nephrosis in children under his observation, he found infection of the nasal sinuses, particularly the antrums. *Staphylococcus hemolyticus* was found to be the most common infecting organism. He reported remarkable effects with treatment, one patient losing 15 pounds (6.8 Kg.) of fluid following the drainage of an infected sinus. He has followed several cases for a number of years with no remaining evidence of nephrosis. In some cases, however, treatment brought about only temporary and symptomatic improvement, because it was not always possible to eradicate the infection completely. He expressed the belief that infections of long standing are likely to lead to permanent changes in the kidney, and that the most to be expected is the prevention of further damage and progressive changes.—Wimmer, S. D.: The Relation of Sinusitis to Nephrosis in Children, *Arch. Otol.*, February, 1931.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

W. A. PUCKNER, Secretary.

IOPAX.—Sodium 2-oxo-5-iodopyridine-N-acetate.—Sodium 5-iodo-2-pyridon-N-acetate. — $C_5H_3ION.CH_2COONa$. The sodium salt of α-oxo-β-iodopyridine-N-acetic acid. Iopax contains from 42 to 43.5 per cent iodine.

Actions and Uses.—Iopax is proposed for use intravenously in radiographic visualization of the urinary tract. It is also used for injection into the renal pelvis through the ureteral catheter for pyelography. After injection, the patient's face immediately becomes flushed and tachycardia and palpitation occur. Patients experience a feeling of general warmth, and in more than half of the cases they complain of pain in the arm, near the shoulder, which they describe as a feeling that the arm is bursting. There is usually considerable dryness of the throat, and thirst, but water is withheld in order that the drug may be secreted in concentrated form. These symptoms usually pass off within ten minutes. Occasionally nausea and vomiting take place, and urticaria has been observed. Symptoms resembling acute iodism, manifested by lacrimation, sneezing and dyspnea, have occurred, but such reactions have been transitory and delayed reactions have not been observed. After ten minutes from the onset of injection, untoward symptoms have not developed.

Roentgenograms are taken from fifteen to twenty minutes after injection, and again from thirty to forty minutes after the first roentgenogram. Before the second roentgenogram is taken, the bladder is emptied, in order that the shadow of the drug in the bladder will not obscure the lower parts of the ureters. If the first plates show that but little of the drug has been secreted, it is presumed that the kidneys are functioning poorly, and several hours should be allowed to elapse, during which plates should be made at intervals. Impairment of renal function will allow but poor concentration of the drug in the bladder and practically none in the kidney; many hours are required for its secretion.

Dosage.—The maximum necessary dosage intravenously is 30 Gm. of the powder dissolved in 100 cc. of redistilled water; for infants and children, from 20 to 100 cc. according to age. The solution, warmed to body heat, is injected slowly into the cubital vein.

Manufactured by Schering-Kahlbaum A. G., Berlin, Germany (Schering Corporation, New York, distributor). U. S. patent applied for. No U. S. trademark.

Iopax occurs as a lemon-yellow, crystalline powder, possessing a slight pungent odor and a characteristic taste; very soluble in water. An aqueous solution is neutral to litmus.

Fuse about 0.2 Gm. of iopax with 2 Gm. of powdered sodium hydroxide: it decomposes with evolution of both iodine vapors and ammonia. Dissolve about 0.5 Gm. of iopax in 100 cc. of water, add an excess of diluted hydrochloric acid; collect the resultant 2-oxo-5-iodopyridine-N-acetic acid on a filter, wash and dry in a partially exhausted desiccator: it melts at 230 C.; to 1 cc. of the foregoing filtrate add 10 cc. of uranyl zinc acetate solution: a yellow precipitate results. Transfer about 0.5 Gm. of iopax to a glass-stoppered cylinder, add 25 cc. of a diluted nitric acid, shake for five minutes, filter: the filtrate yields no distinct turbidity on the addition of 2 cc. silver nitrate solution (*absence of inorganic halides*). Dissolve about 0.5 Gm. of iopax in 50 cc. of water, add 5 cc. of diluted hydrochloric acid, filter: separate portions of 10 cc. each of the filtrate yield no turbidity on the addition of 1 cc. of barium chloride solution (*sulphate*); no coloration or precipitation on saturation with hydrogen sulphide (*salts of heavy metals*).

Dry about 1 Gm. of iopax, accurately weighed to constant weight at 100 C.: the loss in weight does not exceed 5 per cent. Transfer about 0.5 Gm. of iopax, accurately weighed, to a 500 cc. Kjeldahl flask, and determine the nitrogen content according to the official method described in Official and Tentative Methods of Analysis of the Association of Official Agricultural Chemists, second edition, p. 8: the percentage of nitrogen corresponds to not less than 4.5 per cent, nor more than 4.8 per cent when calculated to the dried substance. Weigh accurately about 0.5 Gm. of iopax in a tared platinum dish, add 10 cc. of sulphuric acid, gently heat while fumes of iodine and sulphur trioxide are evolved, repeat, using two portions of 2 cc. of sulphuric acid, respectively, ignite, cool and weigh as sodium sulphate: the sodium found corresponds to not less than 7.2 per cent, nor more than 7.8 per cent, when calculated to the dried substance. Transfer about 0.1 Gm. of iopax to a bomb tube; determine the iodine content by the Carius method: the amount of iodine found corresponds to not less than 42 per cent, nor more than 43.5 per cent, when calculated to the dried substance.

REPORTS OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORTS.

W. A. PUCKNER, Secretary.

BOVININE AND NEOBOVININE NOT ACCEPTABLE FOR N. N. R.

Bovinine and Neobovinine are marketed by the Bovinine Company of New York and Chicago. In 1909 the Council reported that while Bovinine was advertised as a "condensed beef juice prepared by a cold process" it was not meat juice but a mixture of alcohol, glycerin, added sodium chloride, and apparently some form of defibrinated blood. The Council reported further that numerous misrepresentations appeared on the label and in the "literature" of Bovinine (THE JOURNAL, Nov. 20, 1909, p. 1745). In 1914, to determine whether the claims made for Bovinine had been revised to agree with the facts and also to determine whether certain criticisms of the previous report which had been made by the exploiters of Bovinine required a revision of its conclusions, a further examination of Bovinine was made by the Council (Reports Council on Pharmacy and Chemistry, 1914, p. 105). This examination demonstrated that the unwarranted and false claims previously objected to were, for the greater part, still made, and also that the conclusions of the first report were fully warranted by the experimental evidence. The Council has not given consideration to the product since the report in 1914 was issued.

Attention having again been called to Bovinine through the advertising for a similar one, "Neobovinine," which is marketed with it, a referee made an examination of the advertising with a view to determine whether either or both of the products remained open to the objections which the Council had previously published. The referee reported that for Bovinine the situation remained about the same as when the product was last considered. He found no reason for considering this preparation in any way acceptable. In the leaflet that advertises Bovinine and Neobovinine one encounters such unsupported statements as the following: "It will assist in making up for the wear and tear of metabolism without an excessive burden for absorption"; "BOVININE (*Plain*) exerts a stimulatory action on general metabolism, causes a definite improvement in appetite and allows a higher caloric intake with a resulting effect on hemoglobin production"; "BOVININE (*Plain*) is a preparation of fresh beef blood. It contains proteins, complements and nutrients so necessary to general metabolism"; "BOVININE (*Plain*) ranks high in alkaline reaction and is therefore a suitable alkaline food in acid conditions or peptic ulcer"; "Clinical evidence comes to us that in Pernicious Anemia by combining BOVININE (*Plain*) with liver extract the results may be more rapid and the dosage of liver extract reduced."

Neobovinine 20 is stated to be "essentially BOVININE (*Plain*) in which is incorporated the active principle of fresh whole liver." Certainly the combination of Bovinine with a liver extract of undeclared character must be held an unscientific mixture. The case histories are entirely unsatisfactory and report conditions in which it is known that there could not possibly be the results reported, such as purpura hemorrhagica and myelogenous leukemia. The cases of pernicious anemia are not reported with sufficient data on which to base an opinion.

The Council reaffirmed the rejection of Bovinine and declared Neobovinine unacceptable because the information in regard to its composition is inadequate, because the therapeutic claims advanced for it are unwarranted, and because the combination of "Bovinine" with a liver extract of undeclared character is unscientific.

"SPIN-L-RON" NOT ACCEPTABLE FOR N. N. R.

"Spin-L-Ron" is the nondescriptive name under which the Ford Pharmacal Company markets capsules, each stated to contain spinach dehydrated, 5 grains; liver extract powder, 2 grains; and iron and ammonium citrate, 3 grains. It is stated that the spinach content of each capsule represents 100 grains of fresh herb and that the liver extract represents 40 grains of fresh liver. The method whereby the liver extract is prepared is not declared, although it is known that the action of liver extracts depends on the process by which they are prepared. The advertising argues for the use of this mixture on the premise that "SPINACH Is recognized as the richest Iron and Vitamin bearer of all plants"; that liver extract "has demonstrated its value in building up the blood and supplying its necessary tone and color"; that it is being used today by leading specialists and clinics in pernicious anemia; and that iron and ammonium citrate is "the most valuable of Iron salts. . ." No reason is advanced for the use of spinach in capsule form rather than taking a mouthful of cooked spinach at meals. Nothing is said about the fact that the therapeutic action of liver extract depends on the method of its preparation and that the efficacy of certain liver extracts in pernicious anemia has little bearing on the use of liver in other conditions. As for the claim that iron and ammonium citrate is the most valuable of iron salts in anemic conditions, this is without warrant; other iron salts are equally efficient and acceptable. No reasons are advanced why these three substances should be administered in admixture. According to the advertising Spin-L-Ron "will appeal to the pale, anemic, apprehensive patient, toning up the whole system, bringing back strength and healthy glow by producing the necessary blood ingredients and improving appetite and digestion." This is a suggestion to physicians to prescribe this complex mixture to "pale, anemic, apprehensive patients" rather than diagnose and intelligently treat a patient.

The Council declared "Spin-L-Ron" unacceptable for New and Nonofficial Remedies because it is a complex, unscientific mixture of indefinite composition, which is marketed under a nondescriptive name and with unwarranted therapeutic claims.

THYMOPHYSIN NOT ACCEPTABLE FOR N. N. R.

Thymophysin, said to be a preparation of posterior pituitary and thymus, is manufactured by Fritz-Pezoldt of Vienna and is marketed in this country by the American Bio-Chemical Laboratories, Inc., of New York City. The product is recommended as a reliable and safe means of accelerating delivery, obviating the use of forceps in 75 per cent of the cases in which it is used. It is said to be absolutely harmless to mother and child and it is claimed that no harmful effects to either have ever been observed by its use. The special claim for this preparation is that the contractions of the uterus which follow its use are rhythmic in character rather than maintained, as is said to be the case following the use of pituitary alone.

Pharmacologic studies of this preparation or of thymus and pituitary mixtures are few, but most of the recent literature of a clinical nature refers to the paper by Temesváry, which appeared in 1926. Reference to this paper shows, however, that it is concerned almost exclusively with the action of thymus extract and that there are only two tracings which have any relation to the modification of pituitary action by thymus. A comparison of these two tracings shows that whether the contraction pictured is produced by pituitary alone or by pituitary plus thymus there is no essential difference between them. Similar slight differences are always to be found when successive doses of pituitary extract are given in the routine testing of the drug. This slender bit of so-called evidence is the only pharmacologic study which appears to have been published to serve as a basis for the claims which are made for the product.

An extensive clinical literature has appeared since the date of Temesváry's paper, and in general these papers have reported favorable results from the use of the product. However, on account of the difficulties inherent in the situation, such clinical reports cannot be accorded too great weight. It would be extremely difficult to distinguish slight degrees of differences in the length of the individual contractions of a uterus in labor. The drawing of such false deductions is well illustrated by those forming the basis of the recent popularity of watery extracts of ergot for hypodermic injection, which investigations have shown to be lacking in the essential alkaloids of ergot. This made it necessary that Thymophysin be subjected to examination by accurate pharmacologic methods to see whether the claims made for it are justified or whether it might not be merely a weak pituitary extract which, because of the presence of this substance, could shorten labor but which also, because of

its relative weakness, might be safer to mother and child than would pituitary extract alone as it is only too frequently given. Such a study, therefore, has been made by Prof. Erwin E. Nelson of the Department of Pharmacology of the University of Michigan. His paper appears in THE JOURNAL, January 31, page 352. After a critical survey of the literature, Nelson studies the action of Thymophysin itself in comparison with pituitary and again the action of thymus in connection with pituitary. Full details of these studies appear in the paper.

The conclusions drawn by Nelson in his excellent paper are that there is no unequivocal evidence that either oxytoxic or pressor activities of pituitary are altered by the simultaneous administration of thymus; that experimentally no difference could be found in the oxytocic or pressor activities of pituitary alone as compared with pituitary plus thymus (in comparisons of Thymophysin with equivalent doses of pituitary no differences could be demonstrated). Finally, accurate assay of Thymophysin showed that the ampules contained only about 30 per cent of the strength claimed on the label. The lack of complete harmlessness has already been shown by reports which are appearing from time to time in the literature reporting rupture of the uterus, tetanic contractions and cervical tears following its use. In view of these reports the Council declared Thymophysin unacceptable for inclusion in New and Nonofficial Remedies, since it is an unscientific preparation marketed under false claims as to its essential action, as to its strength, and as to its safety for mother and child.

COMMITTEE ON FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COMMITTEE ON FOODS OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION, AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.

RAYMOND HERTWIG, Secretary.

LAND O'LAKES SWEET CREAM BUTTER

Manufacturer.—Land O'Lakes Creameries, Inc., Minneapolis.

Description.—A packaged, salted or unsalted butter graded by official federal-state butter graders as rating 93 score or higher.

Manufacture.—The cream used in the manufacture of this butter, the conditions, equipment and process of manufacture, and the final product must meet certain published standards and requirements adopted by the corporation.

Cream deliveries from tuberculin tested cows are received four times a week in summer and three times a week in winter. Accepted cream contains not more than 0.20 per cent acidity as lactic acid and is clean and sweet of flavor. No neutralizer is used. The cream is pasteurized by holding at 155-158 F. for thirty minutes and immediately cooled to 40 F. No starter is added either before or after churning of the salted butter. A churning report is made for each batch. The butter is tubbed and sent to the central plant for grading and packaging. Unsalted butter is made by the same procedure as salted butter, but with omission of the salt.

A strict control is exercised over the processes and sanitation of the various creameries. Yeast and mold counts of the butter batches are made at intervals.

Before packaging, the butter is graded according to government standards by federal-state butter graders appointed by the U. S. Department of Agriculture in cooperation with the Minnesota State Department of Agriculture. The reports on each creamery batch include acidity of the cream before churning, the temperature of processing, composition of the butter, the method of manufacture and yeast and mold counts. The butter is scored on the basis of:

45 points on flavor
25 points on body
15 points on color
10 points on salt
5 points on package

A "certificate of quality" issued by authority of the U. S. Department of Agriculture and declaring the score is placed in each package. The Land O'Lakes Sweet Cream Butter scores "93 or higher."

Chemical Composition.—

(proximate analysis)

	Per Cent
Salt butter:	
Moisture	15.8
Milk-fat	80.7
Curd	1.0
Salt	2.5
Unsalted butter:	
Moisture	16.0
Milk-fat	83.0
Curd	1.0

Calories.—

7.30 per gram
207.3 per ounce
3317. per pound

Claims of Manufacturer.—A delicious pasteurized sweet cream butter scoring 93 or better by butter graders of the U. S. Department of Agriculture and Minnesota Department of Agriculture. It is made from sweet cream and therefore has a different flavor from that of butter made of sour cream. This butter, always uniform, is one of the finest of butters.

KNOX PLAIN SPARKLING GELATINE (No. 1)

Manufacturer.—Charles B. Knox Gelatine Company, Inc., Johnstown, N. Y.

Description.—An unflavored, unsweetened granular gelatin.

Manufacture.—The mineral matter of crushed bones is extracted with dilute hydrochloric acid. The remaining organic matter is washed with water. Osseomucoids and other protein impurities are removed by treatment with suspensions of calcium hydroxide. Five fresh baths are employed in the course of from thirty-six to forty days. The resultant collagen is washed with water until approximately free from soluble calcium compounds, is adjusted to a p_H of 6.5 with phosphoric acid, and is pumped to cooking pans.

The collagen is converted to gelatin in the pans by hydrolysis with water at from 150 to 170 F. The first extraction is made at 150 F. and the third (final) at 170 F. The gelatin solutions are filtered, concentrated under partial vacuum to from 13 to 15 per cent concentration, filtered, cooled, set to sheets of stiff jelly, placed on nickel drying frames, dried by warm filtered air in long chambers, and ground to pass a 20 mesh screen. The granulated gelatin is packed in envelops in cartons.

Knox gelatin is not chemically bleached nor does it contain preservatives. Strict sanitary control is exercised in the manufacture. The product is machine handled only. The plant equipment is largely aluminum, nickel or stainless steel. Control laboratories assure a uniform product.

Chemical Composition.—

(proximate analysis)

Moisture	13.0–14.0%
Ash	1.0– 1.2%
Protein (N × 5.55)	85.0–86.0%
Fat (ether extract)	0.1%
Carbohydrates	0.0%

Arsenic as As_2O_3	0.6 part	per million
Lead as Pb	0.0 part	per million
Copper as Cu	2.5 parts	per million
Antimony as Sb	0.0 part	per million
Zinc as Zn	0.0 part	per million
Sulphur dioxide	0.0 part	per million

Calories.—

3.45 per gram
98.0 per ounce
1,568. per pound

Claims of Manufacturer.—Knox Sparkling Gelatine is always of high quality. It can be used in a wide variety of delicious desserts, candies, salads and other recipes and makes fruit and vegetables taste better and go further.

This gelatin contains no added sugar or flavoring and consequently is valuable for many special diets. It is one of the most readily digested proteins.

KNOX SPARKLING GELATINE (No. 3)

Manufacturer.—Charles B. Knox Gelatine Company, Inc., Johnstown, N. Y.

Description.—This product is essentially the same as the Knox Plain Sparkling Gelatine No. 1. Each carton contains two envelops of Knox Plain Gelatine and one envelop of fruit acid (citric acid). The citric acid is intended for admixture with the gelatin in various recipe preparations if so desired.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, MARCH 14, 1931

THE CONTROL OF NARCOTIC ADDICTION

Narcotic addiction, one of the most sensational subjects that engages medical and social thought, is again the focus of an extraordinary amount of attention directed from various points of view for diverse reasons. Through the efforts of numerous leagues for combating narcotic addiction, meetings are being held, accompanied by much newspaper publicity, and planned apparently to urge restrictions on the manufacture of narcotics and on their prescription, sale and importation. Special committees appointed in various cities and states are urging the establishment of farms and homes for drug addicts; they support their contentions that these will solve the problem by more or less scientific surveys and data. Several bureaus of the United States government, including the Division of Mental Hygiene in the United States Public Health Service, are making available the results of their investigations. The Wickersham committee, having brought forth what it brought forth about alcohol, is now in labor on drug addiction and crime. The National Research Council, as emphasized in an editorial elsewhere [1] in this issue, is stimulating research, leading possibly to the development of a narcotic that will have the potency of morphine without its property of inducing addiction. The Hearst press publishes editorials calling on the medical profession "to drive out the dope doctors" and stimulates the sale of newspapers by the syndication of the autobiography of a motion picture actress whose addiction and associated difficulties have been the subject of newspaper comment for several years. Such a mass attack must inevitably yield an appreciable result.

Several phases of the attempt to solve the problem of narcotic addiction are reflected in this issue of The Journal. The articles by Light [2] and by Lambert [3] make available the results of studies carried on in the narcotic wards of the Philadelphia General Hospital and of investigations by the Mayor's Committee on Drug Addiction in New York City. In these reports, many points of significance are emphasized. The taking of narcotics is usually an attempt on the part of some one with little will power to achieve a state of euphoria or artificial happiness. Once "hooked" by the drug, the addict finds withdrawal accompanied by exceedingly unpleasant symptoms. He tends to succumb again to his addiction through inability to withstand the thought of withdrawal or through repetition of the psychologic situation that led to addiction. The significant point emphasized by Light and his associates is their belief that addicts will and can control to a large degree the intensity of their withdrawal symptoms, and their opinion that such symptoms are so frequently complicated by nervous manifestations of the nature of hysteria that the control of narcotic addiction demands both psychiatric and psychologic investigations of the persons affected. The work carried on in New York fully supports the Philadelphia results and adds thereto exceedingly interesting observations relative to the therapeusis of the withdrawal stage. Apparently it is possible for an experienced physician to carry an addict through the withdrawal period with relatively little distress, provided the addict is under controllable conditions.

Another important feature of the current issue is the beginning of a series of articles concerned with "The Indispensable Uses of Narcotics." [4] Described by Sir William Osler as "God's own medicine," the importance of narcotic preparations should not be underestimated. Nevertheless there exist in medicine innumerable occasions when one or more of the vast armamentarium of non-habit-forming sedatives, narcotics, hypnotics and analgesics, singly or in combination, may be employed to substitute for an opium derivative. It is the purpose of this series of articles to indicate to the medical profession the relatively few instances demanding the administration of opium or cocaine derivatives and the many substitutes therefor that may be available. Something under 25 per cent of narcotic addiction, it is estimated, results from the beginning of the habit through previous use of drugs in medical treatment. This is after all only an estimate, based largely on evidence derived from the addicts themselves, who are notoriously an unsafe source of evidence. Nevertheless, the physician must strive to limit his prescribing of narcotics absolutely to those situations in which the narcotic may be considered indispensable. Thus he will avoid the possibility of unfavorable criticism.

Figures assembled by the League of Nations and by many other authorities indicate that the medical use of narcotics in the United States far surpasses that of

1. Research for a Non-Habit-Forming Substitute for Morphine, this issue, p. 863.
2. Light, A. B.: Physiologic Aspects of Opium Addiction, this issue, p. 823.
3. Lambert, Alexander: Treatment of Drug Addiction, this issue, p. 825.
4. Fishbein, Morris: The Indispensable Uses of Narcotics, this issue, p. 856. Cutler, E. C., and Holloway, J. W.: The Indispensable Uses of Narcotics in Surgery, this issue, p. 857.

any other nation. The suggestion has been made in extenuation that the speed of modern life in this country is responsible and that the nervous system of the American is somewhat more sensitive than that of the inhabitant of other countries. However, others have insisted that the American physician is too easily inclined to the prescribing of narcotic drugs. Regardless of the validity of the evidence in support of these contentions, it is reasonable to ask that physicians attempt to restrict their prescribing of narcotics. Such restriction may help to determine whether or not the need which creates this large discrepancy in American prescribing as compared with that abroad is an actual or indispensable need.

The assertion has been made by the sensationalists that a great proportion of physicians are drug addicts as compared with the rest of the population. They shriek that a considerable number of physicians are consciously engaged in the creation of addiction for personal gain; hence the call by the Hearst press "to drive out the dope doctor." THE JOURNAL states confidently that no county medical society, no state medical society, nor the American Medical Association will retain in its membership any physician who is convicted of such utterly unethical action. These officially organized bodies need no call from Mr. Hearst "to drive out the dope doctor." The removal of licensure or of the right to practice medicine is not the prerogative of the American Medical Association but distinctly within the purview of the state medical licensing boards. The trial and conviction of such miscreants is the duty of the regularly established investigating, prosecuting and judiciary bodies of this country. They may be assured of all the help that the American Medical Association can render in purging the medical profession of those who have any conscious part in the creation and maintenance of narcotic addiction. Their activities reflect unfavorably on a profession of high standing and it will not tolerate them in its midst.

In the preparation of the series of articles that begins in this issue of THE JOURNAL, many official agencies have cooperated. The list of authors includes men chosen for their competence in the fields of which they write. The articles are published under the auspices of the Committee on Drug Addiction of the Division of Medical Science of the National Research Council, the Division of Mental Hygiene of the United States Public Health Service, the American Medical Association and the Bureau of Social Hygiene, Inc. After the articles were prepared, they were submitted to members of the Council on Pharmacy and Chemistry of the American Medical Association and to representatives of the various cooperating agencies for editing and revision. When completed, these articles will be available in book form for permanent reference by physicians who wish to cooperate in the praiseworthy effort to limit prescribing of narcotics to indispensable uses.

RESEARCH FOR A NON-HABIT-FORMING SUBSTITUTE FOR MORPHINE

The popularity of endocrine, vitamin and diverse synthetic medicinal products in recent years has tended to obscure the significance of active constituents derived from the plant kingdom. The greater number of dependable and useful substances of natural origin in the therapeutic armamentarium may be forgotten because of the emphasis placed on synthetic products offered by the chemical industry. If it had not been for leads obtained from natural products, the synthetic therapeutic products might not have come into existence. Frequently the standard by which the usefulness of a synthetic product is determined depends on a natural product. For instance, the activity and suitability of synthetic products intended for local anesthesia is determined by comparison with cocaine, the alkaloid of coca leaves, a natural local anesthetic, which with its derivatives is not yet surpassed in general usefulness and efficiency by any synthetic product.

The subordination of interest in natural products is the outcome of recognized commercial possibilities of synthetic products rather than a limitation of opportunities for achievement along fundamental and practical lines. The sterility that has possessed this field is to be deplored. Today, exceedingly few chemists and pharmacists concern themselves with the isolation and analysis of medicinal plant constituents. Some manufacturers prepare and market the few constituents that appear indispensable, but generally industry is indifferent to the investigation of new possibilities. Examples of rewarded efforts are nevertheless at hand. For instance, hardly any one would deny that the additional, though belated, efforts were not well spent on two of the oldest alkaloids, ephedrine and quinidine, which have achieved prominence and value. A better understanding of cardiac therapy could scarcely have been achieved without the persistent studies of the natural glucosides of digitalis by Cloetta of Zurich and a few others, notably Jacobs of the Rockefeller Institute in this country. Nothing is more essential than pure and definite constituents for satisfactory pharmacologic and therapeutic studies. But, if the desirability of work in this line should be doubted, one need only reflect on the chaotic state of knowledge of the actions of opium for some hundreds of years until the isolation of its chief active constituent, morphine, by the pharmacist Sertürner in 1803. The effect of this signal achievement for progress in therapeutics is written in the scientific records on a whole series of alkaloids discovered since that time.

Although the active constituents of many important medicinal plants are known, there is still plenty of room and opportunity for effective and creative work. The chemistry of most of the most important constituents remains unsettled, notable among these being morphine. The chemical structure and synthesis of this indis-

pensable alkaloid still remain in doubt. Therefore it is news of more than usual interest that the Committee on Drug Addiction of the National Research Council [1] announces a large collaborative research in alkaloidal chemistry by chemists and pharmacologists of this country. Apparently the present object of the committee is to prepare a non-habit-forming substitute for morphine that would yet possess the desirable actions of morphine. The ideal molecule, apparently some hybrid molecule, is to be built up out of the desirable features of the morphine and codeine molecules. The experiment will be watched with much interest from many sides. If it merely stimulates interest and work in the chemistry of alkaloids and other natural medicinal constituents, the effort will have been well repaid. Thorough investigation of the natural products is likely to prove more instructive and important for a selected materia medica than the multiplication of synthetics, which in many instances represent minor modifications of a single product.

BOTULISM AND DUCKS

Kalmbach,[2] ornithologist of the Biological Survey of the United States Department of Agriculture, assigned to the problem of the so-called western duck sickness, recently made observations that open a wide field for further study of botulism in birds, particularly ducks. Western duck sickness has affected migratory water fowl in marsh lands of western states. Shore birds, geese and ducks, especially of the pintail, mallard and teal species, are subject to the malady. Foci of the disease have been noted in the Bear River marshes and neighborhood in Utah; the Tulare Lake and Buena Vista Lake districts in California; Lake Malheur in Oregon, and other areas in Idaho, Texas, Dakota and Canada. Though a relatively small percentage of birds in an area are affected, it has been estimated that, up to 1927, fifteen million ducks had died.

The disease ordinarily occurs during the hot and dry weather of the summer and fall and is associated with low water, decomposing vegetation and high salt concentration. Although it usually occurs annually, increased severity obtains in some years. Finally, there is a decided cessation of the disease when heavy rains occur or even a lowering of the temperature without rain. In fact, recovery occurs after two to four days in from 70 to 90 per cent of the affected birds, provided fresh water and food are supplied.

Heretofore, the popular theory has been that alkaline waters are the causative agent. Shaw,[3] in a series of experiments, indicated that salt mixtures, particularly those containing nitrates, especially with nitrites, produced symptoms closely resembling those observed in the animals in the field. Moreover, postmortem appearances are similar. In fact, this author reported that a nitrate soil extract of high toxicity of which 100 cc. of water extract was fed over a seven day period caused death. This observation may be of importance in the light of the recent evidence submitted. Kalmbach, however, used body tissue, particularly blood and liver, of animals dead of the disease. After incubation at 85 F. for five or more days this was fed to normal animals in amounts of 0.5 Gm. Death with symptoms resembling the disease ensued, while from 0.1 to 0.05 Gm. allowed recovery. Of great interest was the observation that boiling for five minutes at an altitude of 4,137 feet destroyed the toxic material but that an extract of a toxic liver, filtered and injected into the abdominal cavity, produced typical results.

Apparently the results of Giltner and Couch,[4] who isolated *Bacillus botulinus,* type C, from the mud of one area of duck sickness, indicate that western duck sickness may be botulism. This view is further strengthened by the independent studies of Hobmaier [5] from the Hooper Foundation of the University of California.

Epidemiologically, several theoretical assumptions arise. Botulism, whether in birds or in man, is regarded as a true intoxication. The experimental data as to infection from the spore of *Bacillus botulinus,* a widely distributed soil organism, deserve more than passing notice from epidemiologists despite the fact that the preponderance of evidence indicates that human cases of botulism are caused by consuming food in which the toxin has been preformed. Before the hypothesis that duck sickness is botulism is accepted as proved, toxin of a suitable type must be demonstrated in the mud or the feed, or the infectivity of type C botulinus isolated from the mud must be experimentally proved. There is no doubt that *B. botulinus* grows best and produces a toxin of maximum potency in liver mediums. The feeding experiments with incubated liver of dead animals may be explained by contamination or incidental appearance in the liver of a soil anaerobe. Geiger,[6] years ago, demonstrated that a toxin could be produced in "cased" home-made sausages, when contaminated under actual field conditions of preparation, but only on incubation at 37 C. for seventy-two hours. The temperature growth curve of *B. botulinus* may well be within prevailing weather conditions; assisted by decomposing organic matter, its oxygen requirements may be met by the symbiotic interaction of aerobes and anaerobes. Furthermore, these duck areas must be heavily contaminated with fecal material and it is not unusual to isolate *B. botulinus* from such soils. Theiler and his associates [7] reported the isolation of a botulinus-like organism from the toxic carrion

1. White, W. C.: Committee on Drug Addiction of the National Research Council, Science **73:** 97 (Jan. 23) 1931.
2. Kalmbach, E. R.: Science **72:** 658 (Dec. 26) 1930.
3. Shaw: J. Am. Vet. M. A. **77:** 561 (Nov.) 1930.
4. Giltner, L. T., and Couch, J. F.: Science **72:** 660 (Dec. 26) 1930.
5. Hobmaier, M.: Proc. Soc. Exper. Biol. Med. **28:** 339 (Dec.) 1930.
6. Geiger, J. C., and Stricker, F. D.: Pub. Health Rep. **39:** 655 (April 4) 1924.
7. Theiler, A.: J. Dept. Agric., Union of South Africa, 1920. Eleventh and Twelfth Reports of the Director of Veterinary Education and Research Dept. Agric., Union of South Africa, pt. 2, 1927, p. 1201. Theiler, A., and Robinson, E. R.: Ztschr. f. Infektionskr. par Krank. u. Hyg. d. Haustiere **31:** 165, 1927.

material that produced lamziekte, a fatal disease in cattle in Bechuanaland, Orange Free State, and in the northwest portion of Cape Province. According to Meyer and Gunnison, this organism resembled *B. botulinus*, type C, but only culturally; toxicologically it was a different and distinct type.[8]

Presumably, animal botulism may have respective types that are specifically toxic within certain limits and these may differ in different countries. What their relationship is to the disease as in these observations is at present obscure. We must, perforce, recall the report of the California Botulism Commission [9] and perhaps remain in accord with its epidemiologic conclusion, that it must be shown that the preformed toxin and not merely the bacillus was present in the suspected food or the tissues of the diseased animals.

OXIDATIVE NATURE OF NERVOUS IMPULSE

A nerve deprived of oxygen rapidly loses its power to conduct the nervous impulse but soon regains it if oxygen is again supplied. It has been proved also that a nerve uses oxygen and gives off carbon dioxide during the passage of the nervous impulse and that this reaction liberates heat, which has been measured. Yet this does not prove necessarily that conduction of the nervous impulse is of an oxidative character, as waste products may be formed by the conduction, and these inhibit the process unless they are removed by oxygen.

After a nerve has been placed in an atmosphere of pure nitrogen, and oxygen is again admitted to the nerve chamber, there is an increased consumption of oxygen over the normal resting level, the increase being greater if the nerve is stimulated to activity during its stay in nitrogen. This demonstrates that a nerve is able to go into oxygen debt in the absence of oxygen, the debt being paid off when there is a supply of oxygen available. Under similar conditions, Schmitt [10] has shown that extra carbon dioxide is not given off when a nerve is stimulated in nitrogen. Hence he assumed that conduction under anaerobic conditions may depend on the union of oxygen with some substance in the nerve, not necessarily a complete oxidation when the substance is oxidized to carbon dioxide. The only way that the nerve could obtain oxygen under anaerobic conditions would be from a molecule containing oxygen that was able to give up this oxygen readily when needed and later take up oxygen when it is again supplied to the nerve.

For several years, Warburg [11] has been studying the iron-containing respiratory ferments in tissues having the property of taking up molecular oxygen and of converting the oxygen into an active form that can be readily used by the tissues. Warburg has found that this reaction can be inhibited by carbon monoxide and he believes that the carbon monoxide combines with the respiratory ferment in a manner similar to the combination of carbon monoxide with hemoglobin. If a tissue is placed in an atmosphere of carbon monoxide and oxygen, the respiratory ferment will combine with these gases in proportion to their partial pressures, so that, if the amount of carbon monoxide is increased and the oxygen decreased, practically all the respiratory ferment will combine with the carbon monoxide. Under these conditions, respiration will cease as the supply of oxygen activated by the ferment decreases.

Haldane showed that the ratio of hemoglobin combined with carbon monoxide to hemoglobin combined with oxygen can be altered by the action of light, which has the property of splitting up the carbon monoxide-hemoglobin compound into carbon monoxide and hemoglobin, thus diminishing this compound and increasing the amount of hemoglobin available for combination with oxygen. A similar reaction occurs with Warburg's respiratory ferment. Respiration of isolated cells may be decreased if carbon monoxide is added to the gases in the cell chamber in the dark; the carbon monoxide combines with the respiratory ferment. This inhibition of respiration will disappear when light is thrown on the cell suspension. Light causes the carbon monoxide combined with respiratory ferment to be replaced by oxygen, and respiration may proceed as the ferment again activates oxygen.

A similar mechanism of oxidation takes place in the nerve. Schmitt [12] tested the effect of mixtures of carbon monoxide and oxygen on resting nerves and found that respiration is decreased in carbon monoxide in the dark but that, if the nerve chamber is illuminated, the usage of oxygen will be increased, similar to the change in respiration found by Warburg on cell suspensions. To corroborate this observation, Schmitt studied the effect of mixtures of carbon monoxide and oxygen on the action potentials of nerves. He found that the intensity of the action potential of a nerve can be reduced to zero in a mixture of carbon monoxide and oxygen and in darkness but that, if light is thrown on the nerve, the action potentials will be restored to normal. If the nerve is placed in nitrogen and in darkness, the action potentials can be reduced to zero but cannot be restored by the action of light, thus showing that light has a specific effect on the respiratory ferment and not a general effect on the nerve.

From these experiments, Schmitt concludes that the action potentials in the nerve are primarily of an oxidative nature and that the oxygen used in the process requires activation by the respiratory ferment, which

8. Meyer, K. F., and Gunnison, J. B.: South African Cultures of Clostridium Botulinum and Parabotulinum: XXXVII. With a Description of Cl. Botulinum Type D, N. Sp., J. Infect. Dis. **45**: 106 (Aug.) 1929.

9. Public Health Bull. 127, September, 1922.

10. Schmitt, F. O.: Gaswechsel des Nerven während und nach der Anaerobiose, Biochem. Ztschr. **213**: 443, 1929.

11. Warburg, Otto: The Chemical Constitution of Respiration Ferment, Science **68**: 437 (Nov. 9) 1928.

12. Schmitt, F. O.: On the Oxidative Nature of the Nerve Impulse: I. The Effect of Carbon Monoxide on Medullated Nerve, Am. J. Physiol. **95**: 650 (Dec.) 1930.

may be poisoned by carbon monoxide. It would seem plausible that the ferment simply provides the source of activated oxygen.

These experiments are interesting for the new clues which they provide with regard to the actual mechanisms that are involved in nerve conduction. They show, furthermore, a correlation between the oxidative processes in various types of cells.

Current Comment

AUTOMATIC ENVIRONMENTAL VACCINATION

Native proteins are generally described as nondialyzable. This definition is so firmly established in biochemistry that the mere demonstration of dialyzability is accepted as proof of nonprotein nature. The gastro-intestinal mucosa is a colloidal membrane. It follows, therefore, that an undigested native protein cannot normally pass from the gastro-intestinal contents into the blood stream, any observed passage being proof of local abrasions of destructive lesions. These conclusions are firmly entrenched in the theory and nomenclature of physiology and clinical medicine and have given rise to numerous puzzling paradoxes, particularly in the field of infectious diseases and immunity. Yet both conclusions are erroneous, if one is to credit the experimental evidence currently reported by Dr. A. F. Coca,[1] of Cornell Medical College, New York, who for the first time has studied protein dialyzability by modern serologic technics. Coca tested the dialyzability of egg white and of each individual egg protein, using carefully selected, pressure tested fish bladders, collodion sacs and parchment shells. The dialysates were first concentrated from 500 to 1,000 times by the electric fan, then titrated with specific rabbit precipitins, and tested for antigenic and allergic properties in guinea-pigs. Briefly, Coca reports that by the end of five days approximately 1 per cent of each individual egg protein had passed through his dialyzing membranes, an average hourly rate of about 1 part in 12,000, the area of the membrane not being given. This is equivalent to approximately 1 mg. of egg protein absorbed into the circulation by the end of the first fifteen minutes after swallowing a raw egg, assuming, of course, no increase in absorption surface and an identical permeability. The amount absorbed may well be a hundred times greater than this, because of the relatively large gastro-intestinal surface. Apparently one must conclude from the Coca dialyzation coefficient that undigested food proteins are normally absorbed unchanged from the gastro-intestinal tract, with an ever increasing absorption at each stage of protein cleavage. This absorption may conceivably serve the useful purpose of constantly maintaining the human body in a state of immunization against habitual protein diets, without which automatic environmental vaccination the first destructive lesion of the gastro-intestinal tract might be followed by explosive protein toxicity.

1. Coca, A. F.: On the Dialyzability of Proteins, J. Immunol. 19: 405 (Oct.) 1930.

Association News

THE PHILADELPHIA SESSION

Clinical Lectures at Philadelphia

The program of clinical lectures presented herewith has been arranged by the Council on Scientific Assembly and will be given on Monday, June 8, and on Tuesday, June 9, at the annual session to be held in Philadelphia. The clinical lectures at the last several annual sessions constituted a distinct feature of each scientific program and in most instances have been splendidly attended. The topics to be discussed are of important, practical value to practicing physicians and the speakers selected by the Council are men of wide experience who have given serious study to the subjects they will discuss.

The Clinical Lecture Program will be given in the Irvine Auditorium of the University of Pennsylvania, which is only a short distance from the Municipal Auditorium, where the Registration Bureau and all of the Association exhibits will be installed. Monday morning will be left free for registration so that no one will need to miss the clinical lectures that will begin at 2 p. m.

MONDAY AFTERNOON, JUNE 8

Blood Pictures in Anemias, Leukemias and Allied Disorders of Blood. CYRUS C. STURGIS, Ann Arbor, Mich.
Treatment of Anemias. GEORGE R. MINOT, Boston
Clinical Value of Blood Chemistry Determinations. ROLLIN T. WOODYATT, Chicago

TUESDAY MORNING, JUNE 9

Fungus Diseases. CHARLES MALLORY WILLIAMS, New York
Variations in Methods of Treatment of Syphilis. PAUL A. O'LEARY, Rochester, Minn.
Deficiency Disease: Clinical Recognition and Management. JOHN H. MUSSER, New Orleans

TUESDAY AFTERNOON, JUNE 9

Differential Diagnosis of Coma. HOWARD C. NAFFZIGER, San Francisco
Surgical Handling of Diabetic Patients. L. S. MCKITTRICK, Boston
Types and Treatment of Chronic Rheumatism. RUSSELL L. HADEN, Cleveland

Scientific Exhibit: Special Exhibit on Fractures Under Direction of Cooperative Committee on Fractures

The Cooperative Committee on Fractures, appointed by the Section on Surgery, General and Abdominal, and the Section on Orthopedic Surgery, has been requested by the Committee on Scientific Exhibit to continue the exhibit for the Philadelphia Session. The Cooperative Committee on Fractures has acceded to this request.

Those who compose the committee are, as heretofore, Drs. Nathaniel Allison, Chicago; William Darrach, New York, and Kellogg Speed, Chicago. This committee announces, as members of its Advisory Committee, Drs. W. S. Baer, Wallace Cole, F. J. Cotton, R. B. Dillehunt, E. L. Eliason, George W. Hawley, M. S. Henderson, James M. Hitzrot, W. L. Keller, Frank R. Ober, D. B. Phemister, Emmet Rixford, Charles L. Scudder and William O'Neill Sherman.

The plans of the committee for the Philadelphia Session comprise:

1. Plaster of paris.
2. Emergency treatment of fractures of the lower extremity.
3. Compression fracture of the spine.
4. Fracture of the radius—lower end.
5. Active movements and massage in treatment of fractures.

Demonstrations will be given in separate booths with human models; demonstrators will be on duty from 9 a. m. to 5 p. m. continuously. Demonstrations will run concurrently and criticisms and questions will be answered in the booths.

The committee has arranged for the services of about one hundred physicians, who will aid in the continuous demonstrations. The names of the demonstrators will appear in the Philadelphia Number of THE JOURNAL.

MEDICAL BROADCAST FOR THE WEEK

American Medical Association Health Talks

The American Medical Association broadcasts at 10 a. m. on Monday, 10:45 on Tuesday, 9:15 on Thursday and 10:30 on Saturday over Station WBBM (770 kilocycles, or 389.4 meters).

The program for the week is as follows:

March 16. Dust.
March 17. Anemia.
March 19. Psittacosis.
March 21. International Sanitary Relations.

Five minute health talks may be heard over the Columbia Broadcasting System daily except Sundays and holidays, from 12 to 12:05 p. m., Central Standard Time.

The program for the week is as follows:

March 16. Underweight.
March 17. Cheerfulness.
March 18. The Great Composer — Sleep.
March 19. Safe to Be Sick in a Hospital.
March 20. The Health Item in Your Budget.
March 21. Indicators of Medical Progress.

CONTRIBUTIONS FOR MEDICAL SALON IN PERSHING HALL

The sum contributed this week for the Pershing Memorial in Paris brings the total to $2,151.60. A list of those who have contributed during the current week follows:

A. E. Bruner, M.D., Cleveland
Fenwick Beekman, M.D., New York
J. D. Worrell, M.D., Monmouth, Ill.
M. Milton Eckert, M.D., New York
Harry A. Steckel, M.D., Syracuse, N. Y.
C. W. Eberbach, M.D., Milwaukee
P. F. Peterson, M.D., Butte, Mont.
George J. Righter, M.D., Altamont, N. Y.
C. C. Massey, M.D., Smithfield, N. C.
J. B. Bostick, M.D., Omaha
U. S. Kann, M.D., Binghamton, N. Y.
Robert H. Halsey, M.D., New York

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ARIZONA

Bill Introduced.—H. 239, to amend the nursing practice act, proposes to provide for the issuance of licenses, without examination, to all nurses who served for at least ninety days in the practice of their profession in the Army, Navy or Marine Corps during the World War.

CALIFORNIA

University of Southern California School of Medicine Not Approved.—When this medical school was first opened, the dean was enabled to secure a corps of well qualified teachers, under the belief that other needed improvements would be made. For that reason, at a business meeting of the Council on Medical Education and Hospitals of the American Medical Association held in June, 1930, the Council voted that an acceptable rating be granted for the students who had completed their first two years of medical work during the years 1928-1929 and 1929-1930 under the faculty thus secured, but that an acceptable rating for the medical school be withheld in the hope that further improvements deemed essential would be made. Recent information obtained from reliable sources, however, indicated that, instead of making further improvements, actually retrogressive measures had been adopted. At a business meeting of the Council held February 15, therefore, the Council had no other alternative than to vote that an acceptable status for this medical school be not granted.

Society News.—Dr. Joseph R. Shuman addressed the Los Angeles Obstetrical Society, February 10, on "End Results in Children Born with Intracranial Injuries."——Drs. August H. Rosburg addressed the San Francisco County Medical Society, February 10, on "Bacteriophage"; Harry E. Alderson, "Bacteriophage in Dermatology," and Edwin W. Schultz, "Discussion of Experimental Results on Bacteriophage."——Dr. H. Gideon Wells, Chicago, delivered the third annual series of medical lectures under the Colver Lectureship at the College of Medical Evangelists, Los Angeles, February 17-19, on the general subject "Nature and Cause of Cancer."——Dr. Jules Duesberg, rector and professor of anatomy, University of Liége, Belgium, addressed the faculty and students of the University of California Medical School, San Francisco, February 24, on "How Belgium Is Trying to Develop Research."——Dr. Lyell C. Kinney addressed a joint meeting of the Imperial Valley and San Diego County medical societies, El Centro, February 14, on "Surgical Radiology."——Dr. Evarts A. Graham, St. Louis, delivered three lectures before the San Diego Academy of Medicine, March 3-5, on "The Empyema Question," "Pulmonary Suppuration" and "How Shall We Estimate and Improve the Operative Risk in Patients with Disease of the Biliary Tract?"——The Trudeau Society was addressed, February 24, by John S. Bradway, professor of law and director of the legal aid clinic, University of Southern California Law School, on "What Is Wrong with the Professions?" and Dr. Carl R. Howson, Los Angeles, "The Future of Medicine."——Dr. William J. Kerr, San Francisco, addressed the Portland Academy of Medicine, Portland, Ore., February 12, and the King County Medical Society, February 9, at Seattle, on "Recent Experimental Studies on the Peripheral Circulation with Special Reference to Raynaud's Disease."

CONNECTICUT

Diphtheria Decreases in New Haven.—There was not a child's death reported from diphtheria in New Haven during 1930. Only fourteen cases occurred in a population of 162,655, which is about a 50 per cent reduction from the best previous record. One adult death was reported.

Department of Student Health at Yale.—A new four story building, erected at Yale University at an approximate cost of $500,000, to house the Department of University Health, was recently opened. The building of Indiana limestone is situ-

ated on the southern extension of the Cross Axis. The first floor contains clerical offices and a suite of three rooms for women students. In the basement are x-ray equipment, three orthopedic offices, two physical therapy rooms, an isolation and a sterilizing room. The second floor is arranged to care for sick or injured ambulatory patients. Seven offices, three medical, two surgical, one for diseases of the eye, and one for diseases of the ear, nose and throat, are also on this floor. A total of 27,710 visits was made to this clinic service in 1929-1930. Examination suites, clinical laboratory and the sanitary inspector's office are on the third floor. The fourth floor contains two "follow-up" rooms, a large staff room, a resident's suite, and the director's office. The university health department was organized in 1916 to promote the general health and physical fitness of students, to encourage habits of rational exercise and healthy living, and to insure sanitary environment. A medical examination by the staff is required of each student at least once a year. The medical service not only takes care of communicable diseases and other illnesses but extends its supervision to mental hygiene, nutrition of underweight and overweight

students, orthopedic corrections and the use of physical therapy. During the last year an effort was made to improve the mental hygiene technic used in the survey of new students. This service, since its inauguration in 1927, has almost doubled, the number of students treated in that year being 470, and, in 1930, 851. Emergency patrol stations were recently established near the dormitories, each one having a telephone and attendant on duty during the hours that the department offices are closed, permitting prompt communication with physicians on duty.

ILLINOIS

Bill Introduced.—H. 310 proposes to provide that, in case of death occurring without medical attendance, it shall be the duty of the undertaker to notify the coroner of the death and that the coroner shall then make an investigation as to the cause of death.

License Restored.—The state department of registration and education restored, January 20, the license to practice medicine of Dr. Elmer L. Apple, Albion. The license was revoked, Dec. 20, 1930, after Dr. Apple was convicted of violation of the Harrison Narcotic Act.

Chicago

P. A. Kechek Goes to Jail.—The Department of Registration and Education of Illinois issued a warrant, February 3, against P. A. Kechek, who was posing as a physician in Chicago; February 7, Kechek was arraigned in the municipal court and asked for a jury trial. On failure to produce bond, he was sent to jail until his trial, February 26. On that date, Judge McCarthy found Kechek guilty of violating the medical practice act, sentenced him to an additional thirty days in jail, and also warned him not to violate the law again.

Society News.—Dr. Albert H. Andrews, among others, addressed the Chicago Laryngological and Otological Society, March 2, on "Indication for Operation in Acute Mastoiditis."——Dr. William R. Cubbins addressed the Chicago Society of Industrial Medicine and Surgery, February 4, on "Fractures of the Humerus," and Dr. Carl Scudari presented a "Report of Five Hundred Consecutive Cases of Fracture of the Humerus in the Wards of the Cook County Hospital."——Dr. Raymond W. McNealy delivered the fifth annual Albert J. Oschner Memorial address, February 18, before a joint meeting of the Chicago Medical Society and its North Side Branch on "Present Trend in Blood Vessel Surgery."——Drs. Fred M. Smith and William D. Paul, Iowa City, among others, addressed the Chicago Society of Internal Medicine, February 23, on "Studies on the Mechanism of the Pain of Peptic Ulcer."——A symposium on sterility was presented before a joint meeting of the Chicago Urological and Gynecological societies, February 26, the speakers being Drs. Henry Schmitz and Victor D. Lespinasse.——A symposium on diseases of the heart will be presented before the Chicago Medical Society, March 18, by the following members of the faculty of Loyola University Medical School: Drs. Thomas P. Foley, Isadore M. Trace and Italo F. Volini. Mr. Leonarde Keeler of the Scientific Crime Detection Laboratory, affiliated with Northwestern University, addressed the society, January 28, on "Practical Application of Emotional Changes."

INDIANA

Bills Introduced.—S. 284 proposes to authorize counties, certain cities, and districts composed of counties to establish and maintain full time health departments. S. 324 proposes to prohibit the employment of nurses in hospitals longer than eight hours a day, except in emergencies. H. 478 proposes to authorize cities of from 104,000 to 112,000 population to make appropriations to certain types of hospitals located therein. H. 497 proposes to authorize cities of the second, third, fourth and fifth classes to establish departments of public sanitation.

Society News.—Dr. James O. Ritchey, Indianapolis, addressed the Clinton County Medical Society, Frankfort, February 5, on hypothyroidism.——Dr. Clarence L. Bock, Muncie, addressed the Delaware-Blackford Counties Medical Society, Muncie, January 20, on intravenous pyelography.——Dr. Frank W. Hartman, Detroit, addressed the St. Joseph County Medical Society, South Bend, February 11, on "Newer Aspects of the Nephritis Problem."——"Meningitis in Children" was the subject of Dr. Arthur J. Fletcher, Danville, Ill., before the Fountain-Warren County Medical Society, Hillsboro, February 5.——Dr. Edwin N. Kime, Indianapolis, addressed the Gibson County Medical Society, Princeton, February 2, on "Physical Therapy and Its Relation to General Practice."——Dr. Martin Dewey, New York, addressed the Elkhart County Medical Association, February 5, on "Evolution and Development of the Head and Face as Related to Certain Deformities."——Dr. Alfred S. Giordano, South Bend, addressed the LaPorte County Medical Society, February 19, Michigan City, on "Undulant Fever."——Dr. Edward L. Lingeman, Indianapolis, addressed the Wayne Union County Medical Society, Richmond, February 19, on "Common Colds."——Dr. Amzi Weaver, New Albany, addressed the Floyd County Medical Society, February 13, on "Pulmonary Edema" with report of case.——Mr. Albert Stump, Indianapolis, attorney for the state medical association, addressed a joint meeting of the Muncie Bar Association and the Delaware-Blackford Counties Medical Society, Muncie, February 17, on "Expert Evidence in the Courts."——The Indianapolis Medical Society will be addressed, March 17, by Drs. Robert M. Dearmin on "Jugular Bulb Thrombosis" with case report, and Joseph W. Ricketts, "Intragastric Photography." The society will be addressed, March 24, by Dr. David Smith on "Conduct of Labor in Borderline Pelves," and, March 31, by Drs. Edwin N. Kime and Percy E. McCown, "Status of Biophysics in Modern Medical Practice" and "Discussion of the Etiology and Possible Prevention of Prostatic Hypertrophy," respectively.

IOWA

Award for Service to Community.—Dr. and Mrs. David Wilson Smouse, formerly of Des Moines, now of Pasadena, Calif., received jointly the award given annually to the citizen of Des Moines who has given the greatest service to the community. It is commemorated by the presentation of a loving cup furnished by the Des Moines *Tribune-Capital*. Dr. and Mrs. Smouse in 1929 gave $330,000 for the founding of a school for handicapped children in Des Moines. The school, which is to be known as the David W. Smouse Opportunity School, was to be opened to students, March 9. It is to be operated as a part of the city school system and will care for children with orthopedic defects, deafness, defective vision, cardiac impairment and chorea. Mentally handicapped children are not to be admitted. Dr. Smouse, who is 77 years old, engaged in practice in Des Moines for about forty years.

Society News.—Dr. Harold M. Camp, Monmouth, Ill., addressed the Des Moines County Medical Society, February 10, on "How Public Health Education Affects the Physician."——The sixth annual meeting of the Iowa Public Health Association will be held, April 2-3, in Des Moines, with headquarters at the Hotel Fort Des Moines. Drs. Taliaferro Clark, Washington, D. C., and Arthur T. McCormack, Louisville, Ky., will be the guest speakers.——Drs. John L. Kestel and Thomas F. Thornton, both of Waterloo, addressed the Des Moines Academy of Medicine and the Polk County Medical Society, January 27, on "Objective Diagnostic Methods in Kidney Disorders" and "Stone in the Ureter," respectively. Dr. Irl C. Riggin, New York, addressed the society, February 25, on rheumatic heart disease in children.——The annual meeting of the Iowa Tuberculosis Association, the Iowa Sanatorium Association and the Iowa Heart Association was held in Des Moines, February 26-27. Among the speakers were Drs. Walter L. Bierring, Des Moines; Irl C. Riggin, New York; Henry Boswell, Sanatorium, Miss., and Edward A. Meyerding, St. Paul.——Dr. Warren H. Cole, St. Louis, spoke before the Linn County Medical Society, Cedar Rapids, January 6, on infections of the liver.——Dr. Anthony C. Pfohl addressed the Johnson County Medical Society, Iowa City, February 4, on acute intestinal obstruction.——Dr. Henry Schmitz, Chicago, addressed the Marshall County Medical Society, January 6, on early diagnosis of cancer.——Dr. Dean M. Lierle, Iowa City, addressed the Scott County Medical Society, Davenport, January 6, on allergy in relation to otolaryngology.

KANSAS

Bill Introduced.—S. 379 proposes to require all chiropractors to register annually and to pay an annual fee of $5.

LOUISIANA

Medical School for Louisiana University.—Organization of a school of medicine as a part of Louisiana State University has recently been announced by Gov. Huey P. Long. Premedical work and the first two years of medicine are to be given at the university in Baton Rouge and the last two in connection with Charity Hospital, New Orleans. Dr. Arthur A. Vidrine, superintendent of Charity Hospital, has been named dean, and an advisory directorate has been appointed, consisting

of Drs. James T. Nix, Jr., New Orleans; Arthur A. Herold, Shreveport, and Dempsey C. Iles, Lake Charles. Reported appointments to the teaching staff include Drs. Clyde Brooks, at present professor of physiology and pharmacology at the University of Alabama School of Medicine, Tuscaloosa, who will occupy the same position in the new school; Henry N. Blum, professor of clinical ophthalmology at Tulane University of Louisiana Graduate School of Medicine, head of the department of ophthalmology; Joseph N. Roussel, president of the staff of Touro Infirmary, head of the department of dermatology; Pierre Jorda Kahle, professor of urology at the graduate school of Tulane, head of the department of urology; Phillips J. Carter, assistant professor of operative gynecology in the graduate school of medicine at Tulane, head of the department of obstetrics; Russell E. Stone, New Orleans, who will be professor of clinical surgery in the new graduate school; Homer J. Dupuy, Jr., professor of oral surgery, Loyola University, New Orleans, head of the department of otolaryngology, and Amédée Granger, head of the department of radiology at the graduate school of medicine at Tulane, who will head a similar department in the proposed school. Construction of a new building for the medical school on the Charity Hospital grounds is expected to start about April 1 and the school will receive students next October, according to the plans.

MAINE

Bill Introduced.—H. 443 proposes to make it unlawful to sell any food, drink, medicine or toilet preparations intended for human use, or any antifreeze agent for motor vehicle radiators, which contains wood alcohol, methanol or methyl alcohol. Sales for other purposes may be made only in containers labeled "poison."

Society News.—Dr. Robert B. Osgood, Boston, conducted postgraduate teaching clinics and lectured on arthritis at the Central Maine General Hospital, Lewiston, in January.——Dr. Edward H. Risley, Waterville, delivered the annual president's address at the December meeting of the Kennebec County Medical Society on "Traumatic Head Injuries."——Dr. Frederick T. Lord, Boston, addressed the Penobscot County Medical Society, Bangor, in December, on pulmonary disturbances.——Drs. William P. Murphy and Samuel A. Levine, both of Boston, gave addresses before the York County Medical Society, Biddeford, January 8, on "Diet in Disease" and "Interpretation of Cardiac Irregularities," respectively.

MARYLAND

Bills Introduced.—H. 182 proposes to provide that local boards of health shall each appoint in May, 1931, and quadrennially thereafter, a health officer. No such appointment, however, shall be made without the advice and consent of the state board of health. H. 183 proposes that the state board of health shall divide the state outside of Baltimore city into twenty-three sanitary districts and shall appoint a deputy health officer for each sanitary district.

Dr. Frost to Succeed Dr. Howell.—Dr. Wade Hampton Frost, professor of epidemiology, Johns Hopkins University School of Hygiene and Public Health, has been appointed dean of the school to take office July 1, when Dr. William H. Howell retires as director. In creating a deanship to take the place of the directorship, the university adopted a new ruling under which the dean is appointed for three years and is not eligible to succeed himself. Dr. Frost was graduated from the University of Virginia Department of Medicine in 1903 and served on the staff of the U. S. Public Health Service for many years. In 1919 he went to Johns Hopkins as lecturer in epidemiology and became professor in 1921.

MICHIGAN

New Ruling on Internships.—The Michigan State Board of Registration in Medicine has recently adopted a new rule under which two years' service on the staff of an approved hospital for tuberculosis or for mental disease will be accepted in lieu of the present requirement of a one-year rotating internship in a general hospital. This plan will make it possible for a physician intending to limit himself to these specialties to begin his chosen work immediately after graduation and it is hoped that more physicians will thus be induced to enter these fields.

Bills Introduced.—H. 144 proposes that any person arrested while driving a motor vehicle on public highways, and charged with being intoxicated or under the influence of stupefying drugs may be taken by the arresting officer to a duly licensed physician for examination, and the testimony of the examining physician shall be admitted at the trial. H. 413 proposes to create a board of chiropractic examiners and to regulate the practice of chiropractic, defined as the locating of misalined or displaced vertebrae of the human spine and the procedure preparatory to, and the adjustment by hand of, such misalined or displaced vertebrae and adjacent bones or tissues.

Society News.—Mackinaw City, a village of 800 persons, was left without a physician when Dr. Allen C. Tiffany recently departed on account of ill health. The nearest physician is said to be in Cheboygan, 20 miles away.——Dr. Emil Amberg, Detroit, addressed the Bay County Medical Society, Bay City, January 14, on the hard of hearing child and the deaf child.——Dr. Richard R. Smith, Grand Rapids, addressed the Calhoun County Medical Society, Battle Creek, February 3, on "Uterine Myomata and Their Treatment." Dr. Raphael Isaacs, Ann Arbor, addressed the society, January 6, on "Diagnosis and Treatment of the Blood Forming Organs."——Dr. Leo L. Newfield addressed the Maimonides Medical Society, Detroit, February 2, on "Cardiac Pain and Coronary Disease," and Dr. Sydney K. Beigler, February 9, on "Chronic Pulmonary Suppuration."——Drs. Guy L. Hunner, Baltimore, and William E. Lower, Cleveland, addressed a joint meeting of the Detroit Roentgen Ray and Radium Society and the Detroit Academy of Surgery, January 8, on "Renal Hemorrhage" and "Tumors of the Kidney and Their Surgical Treatment."——Dr. Norman R. Kretzschmar, Ann Arbor, addressed a recent meeting of the Monroe County Medical Society at Monroe on "Abnormal Bleeding in Obstetrics and Gynecology."——Dr. John E. Gordon, Detroit, addressed the Oakland County Medical Society, Pontiac, February 19, on "Prevention and Treatment of Measles" and "Diagnosis and Treatment of Preparalytic Poliomyelitis."——A joint meeting of the Wayne County Medical Society and the Detroit Dental Society, February 10, was addressed by Drs. Robert C. Moehlig on "Effect of Glandular Disturbances on the Teeth"; Plinn F. Morse, "Relation of the Teeth to General Pathology," and Frederick Schreiber, "Convulsions." Dr. Max Ballin addressed the Wayne County Medical Society, February 17, on "Bone Changes Caused by Parathyroidism and Parathyroidectomy"; Dr. Frank C. Mann, Rochester, Minn., March 3, on "Physiology of the Liver," and Dr. William Engelbach, St. Louis, March 10, on "Endocrines." Dr. John F. Barnhill, Indianapolis, will speak, March 17, in a joint meeting with the Eye, Ear, Nose and Throat Society, on headache. Dr. Willis F. Manges, Philadelphia, will address the society in conjunction with the Detroit branch of the American Roentgen-Ray and Radium Society, March 24, on "Foreign Bodies in Air Passages."

MINNESOTA

Bills Introduced.—H. 529 proposes to provide that in the admission of patients to the Minnesota General Hospital preference shall be given to patients at the Hospital of the Minnesota State Soldiers' Home. H. 569 proposes that any person who is a licensed assistant pharmacist at the date of its enactment, who was actually employed in a drug store prior to April 23, 1919, and who prior to the passage of the bill has duly applied for a license as a pharmacist, shall be entitled to registration as a pharmacist on passing a satisfactory examination and the payment of the proper fee.

Naturopath Fined.—William H. Hirst, 53 years old, self-styled naturopath, pleaded guilty in the district court, February 26, on charges of maintaining an office and using the title "doctor" in violation of the basic science law, the state board of medical examiners reports. Judge John W. Boerner sentenced him to pay a fine of $500 or serve six months in the workhouse for the first charge. On the second charge he was sentenced to one year in the workhouse but the sentence was suspended on condition that he refrain from practicing healing in Minnesota. Hirst paid the fine.

MISSOURI

Radium Reclaimed from Watch Dials.—Students at the University of Missouri under the direction of Herman Schlundt, Ph.D., professor of physical chemistry, are reclaiming radium from old luminous watch and clock dial paint. By a process of removing the impurities of the paint by gradual crystallization and precipitation, it is said that about 95 per cent of the radium is recovered. About 50 mg. can be extracted from 30 gallons of paint. The laboratory is principally engaged in the refining of mesothorium and incidentally in the separation and conservation of other radioactive substances used by other

departments of the university in studies of the effects of radiation. Experiments are also in progress to determine the hazards incident to the handling of radioactive substances.

Bills Introduced.—H. 583 proposes to make it unlawful for any itinerant vender to sell or in any other way distribute any drug, nostrum, ointment or application, whether intended for the treatment of disease or injury or not. Nothing in the act, however, is to apply to licensed practitioners of medicine, surgery, dentistry, veterinary surgery or medicine, homeopathy or pharmacy. H. 584 proposes to require employees in hotels, restaurants, cafes and lunch rooms to undergo such physical examinations, at least once every six months, as will indicate freedom from infectious, contagious or chronic diseases. H. 589 proposes to grant the state board of health general supervision of all nervous and mental hospitals and all institutions treating nervous and mental diseases. H. 617 proposes to authorize the establishment of a psychopathic hospital, in two units of approximately 100 beds each, at a cost not to exceed $1,400,000.

NEW MEXICO

Bill Introduced.—S. 94 proposes a new act to regulate the manufacture, possession, use, control and disposal of certain narcotic drugs.

Dr. Earp Appointed State Health Officer.—Dr. J. Rosslyn Earp, formerly of Boulder, Colo., has been appointed director of the bureau of public welfare of New Mexico, succeeding Dr. George Sparr Luckett, who resigned several months ago. Dr. Earp, a native of England, was recently scientific editor of *Colorado Medicine*.

NEW YORK

Society News.—A conference of health workers called by Dr. Thomas Parran, Jr., state health commissioner, was held at Albany, January 21, to outline a campaign for reducing the number of cases of measles among children under 3 years of age. ——Dr. John S. McCormick, Albany, among others, addressed the Albany County Medical Society, January 11, on "Congenital Absence of a Portion of the Esophagus." Drs. Jonathan M. Wainwright, Scranton, Pa., and Burton T. Simpson, Buffalo, addressed the society, February 27, on "Importance of the Tumor Clinic in the Solution of the Cancer Problem" and "Responsibility of the General Practitioner in the Early Diagnosis of Cancer," respectively.

Outbreak of Gastro-Enteritis Traced to Well Water.—Following a supper at which about 100 people were served in a community in the northern part of the state, Dec. 11, 1930, many persons who had partaken of the meal suffered attacks of vomiting, pain, diarrhea and exhaustion. Most of the patients recovered in from two to five days. Forty feet away and at a slight elevation above a well from which the water for the meal was taken there was a privy. Investigation showed that a member of the household residing on the property had had a severe attack of gastro-enteritis three weeks prior to the supper, and one week later another member of the family had a like illness. The symptoms in both cases were similar to those of the persons who became ill after the supper. A sample of water from the well examined at the state laboratory was found to be polluted. *B. dysenteriae* of both the Flexner and the Sonne types were isolated at the state laboratory from specimens of feces submitted from those who were ill.

New York City

Sixth Harvey Lecture.—Dr. James B. Herrick, emeritus professor of medicine, Rush Medical College, University of Chicago, will deliver the sixth Harvey Society Lecture, March 19, at the New York Academy of Medicine on "The Coronary Artery in Health and Disease."

Physicians as Artists.—Oil paintings, water colors, photographs, etchings, linoleum cuts, sculpture and wood carvings are among the varied work shown at the fifth annual art exhibit sponsored by the New York Physicians' Art Club at the New York Academy of Medicine. Among the sixty-three exhibitors are Drs. Benjamin S. Barringer, president of the club, who is showing three oil paintings; Solomon Bauch and Louis C. Schroeder, oil paintings; Henry S. Patterson and Henry A. Bancel, marines and landscapes in water color; Carlo D. Martinetti, Orange, N. J., snow scene in oil; Harris P. Mosher, Boston, etchings and wood carvings; Isaac Seth Hirsch, sculpture; Max Thorek, Chicago, Theron W. Kilmer and Lionel S. Auster, photographs, and H. Fischer, linoleum cuts and etchings. Except for one of Dr. Barringer's paintings, one of a gnarled tree, which he named "Arteriosclerosis," there is no reference to medicine in the exhibition, in which there are 233 individual exhibits.

Diphtheria Decreased 57 Per Cent in 1930.—The lowest death rate for diphtheria on record in New York is shown in the report of the commissioner of health for 1930. There were during the year only 199 deaths, a decrease of 57 per cent from 1929, and 3,806 cases as against 8,548 in 1929. The reduction is attributed to the concentrated drive made by the special commission during 1929 and 1930. The death rate from measles showed a striking decrease, 153 deaths as compared with 1,038 in 1928, the last epidemic year. This was the result of extensive use of convalescent serum, the commissioner reported. Two cases of smallpox were reported, with no deaths; there have been only two deaths from smallpox in New York in eighteen years. Cancer showed the highest death rate on record in the city, 116 per hundred thousand. Heart disease showed a decrease of 527 deaths from the preceding year. The general death rate was 10.76, a slight decrease, and the infant rate was 57 per thousand births. There were no epidemics in 1930.

Society News.—A total of 3,590 pints of human blood was transfused during 1930 from donors enrolled in the Blood Transfusion Betterment Association, it is reported; 3,056 transfusions were made, for which approximately $170,000 was paid. There are 800 professional blood donors registered in the association.——The Harlem Medical Association celebrated the sixtieth anniversary of its founding at a dinner, February 26. Dr. Charles Gordon Heyd gave an address on "The Future of Medicine," and Dr. Louis I. Harris, on "Medicine and Society." ——Dr. Henry F. Graham addressed the Medical Society of the County of Kings, February 17, on the value of early operation for acute cholecystitis. —— The New York Academy of Medicine was addressed, March 5, by Drs. Charles A. Elsberg on "The Edwin Smith Surgical Papyrus and the Diagnosis and Treatment of Injuries to the Skull and Spine 5,000 Years Ago." —— Dr. Foster Kennedy addressed the International and Spanish-Speaking Physicians, Dentists and Pharmacists, February 27, on "The Nature of Epilepsy," and Dr. Mihran B. Parounagian on syphilis.——Dr. Ralph Pemberton, Philadelphia, addressed the New York Physical Therapy Society, March 4, on "Physiologic Action and Therapeutics of Massage."——Dr. Reuben Ottenberg delivered the fifteenth afternoon lecture at the New York Academy of Medicine, March 6, on "Practical Advances in the Study of the Liver and Its Diseases," and Dr. Henry K. Pancoast, Philadelphia, the sixteenth, March 13, on "Silicosis: Its Present Aspect." —— Dr. Joseph C. Bloodgood, Baltimore, addressed the Medical Society of the County of Queens, March 6, on the opportunities offered to county medical societies by the developments of modern medicine.

OHIO

Athletic Coaches Must Take Health Courses.—Athletic coaches in Ohio will henceforth be considered teachers of health and education in the eyes of the division of certification, the state department of education has announced. As such they must have a minor of twelve semester hours in health and physical education for part time work and a major of forty semester hours for full time. The ruling does not affect those who now hold certificates but is expected to be in full force by 1935.

Bills Introduced.—S. 186, to amend the workmen's compensation act, proposes to add to the list of those occupational diseases already compensable manganese dioxide poisoning, radium poisoning, tenosynovitis and prepatellar bursitis, chrome ulceration of the skin or nasal passages, potassium cyanide poisoning and sulphur dioxide poisoning. S. 212 and H. 266 propose to authorize physicians to prescribe pure grain or ethyl alcohol or spirituous liquor in quantities now or hereafter permitted by federal statutes and regulations. S. 245 authorizes the state board of health to appoint inspectors of dairies and of slaughter houses and such other persons as are necessary to carry out the provisions of the code relative to the inspection of foods and supplies, and to grant them general police powers. S. 247 proposes to authorize physicians to prescribe not more than one pint of liquor in a ten day period to a patient and prohibits the prescribing of wine containing more than 21 per cent of alcohol by volume.

Personal.—Dr. Floyd R. Stamp, Alliance, has been appointed health commissioner of Stark County, it is reported, to succeed Dr. Chester M. Peters, Canton, who resigned after eleven years'

service, to devote his time to private practice.——Dr. George E. Follansbee was elected president of the Cleveland Medical Library Association, January 19. Dr. Aleš Hrdlička, Washington, D. C., addressed the meeting on "Disease, Medicine and Surgery in Prehistoric America."——Dr. William Edgar Wheatley, Lorain, was recently selected as the recipient of the 1930 Achievement Award presented by the Lorain *Journal* to the town's most valuable citizen. Dr. Wheatley has practiced in Lorain for thirty years.——Dr. John S. Hagen, Cincinnati, was recently appointed a member of the state medical board of Ohio to succeed the late Dr. John K. Scudder.——Dr. George W. Crile, head of the Cleveland Clinic and professor emeritus of surgery at Western Reserve University School of Medicine, was the guest of honor at a dinner given by about 400 physicians, February 23. Dr. Charles H. Mayo, Rochester, Minn., was the principal speaker.——Dr. Joseph H. Kinnaman, chief medical inspector and assistant health officer of Cincinnati, has resigned to become deputy health commissioner of Iowa.——Dr. John Dean Boylan, Milford Center, has been appointed health commissioner for Union County to finish the term of Dr. Harry G. Southard, Marysville, who resigned to become state health officer.——Dr. Loy C. Schiff, Ashville, has been named health commissioner of Pickaway County to succeed the late Dr. Addison L. Stump.——Dr. Millard C. Hanson, Mansfield, was appointed health commissioner of Mansfield and Richland County to succeed Dr. Theodore R. Meyer, who resigned, March 1.

OKLAHOMA

Bills Introduced.—S. 127, to amend the narcotic act, proposes to include in the list of those substances classed as narcotics "marijuana, or a preparation known as such, cannabis from the plant cannabis sativa, family Moraceau, its preparations or derivatives." H. 300 proposes to make it a cause for divorce for one spouse to be found incurably insane and committed to an institution for the treatment of insane persons.

Society News.—Dr. Henry H. Turner, Oklahoma City, among others, addressed a joint meeting of the Okmulgee and Okmskee county medical societies, January 19, on "Relationship Between Neurology and Endocrinology."——Dr. William P. Fite, Muskogee, addressed the Pottawatomie County Medical Society at Shawnee, January 17, on arthritis. Dr. Willis Kelly West, Oklahoma City, presented a motion picture on "The Technic of Arthrodesis of the Hip Joint by Surgical Procedure."

OREGON

University News.—Dr. Elexious T. Bell, professor of pathology, University of Minnesota Medical School, delivered the N. W. Jones Lectures under the auspices of the University of Oregon Medical School, March 4-6. Dr. Bell's topics were "Glomerulonephritis," "Nephrosis" and "Vascular Diseases of the Kidney."

Bills Introduced.—S. 332 proposes that any registered pharmacist who has been paying annual renewal fees for twenty years or more and who is not actively engaged in the practice of pharmacy shall be carried in good standing without further payment until such time as he again enters active practice. S. 340 proposes to provide that the board of pharmacy may issue a certificate of registration to any person residing in the state for at least ten years, who has had at least ten years' experience under the supervision of a registered pharmacist. S. 350, to amend the medical practice act, proposes that when any woman furnishes the board of medical examiners with a sworn statement that any licentiate has performed an abortion on her, the board shall immediately forward such sworn statement to the proper district attorney.

PENNSYLVANIA

Society News.—Dr. William A. Frontz, Baltimore, addressed the Cambria County Medical Society, February 12, on "The Diagnosis of Hematuria."——Dr. Elmer H. Funk, Philadelphia, addressed the Northampton County Medical Society, February 20, on "Problems in the Diagnosis of Thoracic Disease."——Dr. William D. Stroud, Philadelphia, addressed the Lehigh Valley Medical Association, Hazleton, February 11, on treatment of cardiovascular disease.——Infection of the teeth and its relation to systemic disease was the subject of discussion at a joint meeting of the Erie County medical and dental societies, February 11, at which Dr. Werner J. Rose, Buffalo, N. Y., and Thomas J. Hill, D.D.S., Cleveland, Ohio, were the principal speakers.——Dr. William Gerry Morgan, Washington, D. C., addressed the Lycoming County Medical Society, Williamsport, in January, on "Some Observations on Etiology." At a meeting, February 13, Drs. Frederick E. Keller, Philadelphia, and John A. Campbell addressed the society on "Pelvic Surgery with Low Hemoglobin" and colitis, respectively.——Dr. George F. Suker, Chicago, addressed the Pittsburgh Ophthalmological Society, February 23, on "Retinal Complications in Cardiovascular Lesions."——Dr. Howard S. Reiter, Brownsville, addressed the Fayette County Medical Society, among others, March 5, at Uniontown, on dystocia.

Philadelphia

Da Costa Day.—Dr. John Chalmers Da Costa, Samuel D. Gross professor of surgery, Jefferson Medical College, delivered a lecture reviewing his forty years' active work in surgery as the principal feature of the first observance of Da Costa Day by the Philadelphia County Medical Society, March 11. Da Costa Day was inaugurated, April 30, 1930, with the establishment of the John Chalmers Da Costa Foundation for the purpose of furthering postgraduate teaching under the auspices of the society,

Society News.—Dr. Damaso de Rivas gave the weekly seminar lecture under the auspices of the Philadelphia County Medical Society, February 27, on "Parasitology from the Clinical Standpoint." Dr. John A. McGlinn was the speaker, March 6, on "Responsibility of the Obstetrician in the Recognition and Treatment of Thymic Disorders in New-Born Babies."——Dr. Herbert T. Kelly addressed the Philadelphia Medical Examiners' Association, March 2, on "Significance of Sugar in the Urine."——Drs. Robert H. Ivy and Lawrence Curtis addressed the Philadelphia Academy of Surgery, March 2, on "Fractures of the Upper Jaw and Malar Bone," and B. Franklin Buzby, "Internal Derangements of the Knee."—Dr. Francis V. Gowen addressed the Philadelphia Laryngological Society, March 3, on "Scarlet Fever Sinusitis."——Dr. Catharine Macfarlane addressed the Obstetrical Society of Philadelphia, March 5, on "Carcinoma Developing in a Myomatous Uterus, Following X-Ray Menopause."

SOUTH DAKOTA

Bill Introduced.—H. 42, to amend the workmen's compensation act, proposes to raise to $200 the amount for which an employer will be liable on account of medical and hospital services rendered an injured employee and to provide that in exceptional cases the employer shall furnish such additional medical, surgical and hospital services as the industrial commission shall order, but in no event to exceed an additional $100.

TENNESSEE

Health at Nashville.—Telegraphic reports to the U. S. Department of Commerce from eighty-one cities with a total population of 36 million, for the week ended February 28, indicate that the highest mortality rate (25.8) appears for Nashville and the rate for the group of cities as a whole, 14. The mortality rate for Nashville for the corresponding period in 1930 was 13.9 and for the group of cities, 14.1. The annual rate for the eighty-one cities for the nine weeks of 1931 was 14.2, as compared with a rate of 13.4 for the corresponding weeks of 1930. Caution is necessary in the interpretation of these figures, as weekly figures fluctuate widely. The fact that some cities are hospital centers for large areas outside the city or that they have large Negro populations may tend to increase the death rate.

TEXAS

Bills Introduced.—H. 569 proposes that the state acquire the Texas Dental College, located in Houston, and operate it as a state school of dentistry under the same name. H. 692 proposes to authorize the establishment of a tuberculosis sanatorium for Negroes.

UTAH

Bill Introduced.—S. 103, to amend the optometry practice act, proposes to add to the list of grounds for the revocation of licenses (1) soliciting from house to house or sending a solicitor from house to house and (2) failure to deliver a certificate of identification as required by the act. It also proposes to make it a misdemeanor to sell at retail as merchandise in any store or established business any spectacles, eyeglasses or lenses, unless a duly licensed physician or duly qualified optometrist is in charge of and in personal attendance at the place where the articles are sold.

WISCONSIN

Personal.—Dr. Merle R. French resigned, February 7, as director of the contagious disease division of the Milwaukee health department; he has been appointed state epidemiologist of New York, it is reported.——Dr. Norman L. Howison has resigned as attending physician at the Dunn County Asylum and County Home, Menominee, after thirty years' service.

Society News.—Dr. Harry R. Foerster was recently elected president of the Milwaukee Academy of Medicine and Dr. David E. W. Wenstrand, secretary.——Dr. William S. Middleton, Madison, discussed pernicious anemia and Dr. Carl W. Eberbach, injection treatment for varicose veins, before the Milwaukee County Medical Society, February 13.——Dr. Charles F. Sawyer, Chicago, addressed the Outagamie County Medical Society, Appleton, February 19, on intestinal obstruction.——Dr. Joseph W. Gale, Madison, addressed the Marathon County Medical Society, Wausau, February 18, on diseases of the breast.——Dr. William S. Middleton, Madison, addressed the Green Lake-Waushara-Adams County Medical Society, recently, on "Clinical Interpretation and Treatment of Nephritis."——Dr. Jules Duesberg, professor of anatomy and rector at the University of Liége, Belgium, addressed the University of Wisconsin Medical Society and the biologic division of the university, February 9-10, on "Experimental Cytology." George L. Clark, Ph.D., professor of chemistry, University of Illinois, will address the society, March 18, on "Analysis of Tissue by X-Rays."

GENERAL

Four Weeks of Automobile Fatalities.—Eighty-one large cities in the United States reported to the U. S. Department of Commerce 614 deaths from automobile accidents during the four weeks ended February 21, as compared with 574 deaths during the four weeks ended Feb. 22, 1930. Most of these deaths resulted from accidents within the corporate limits of cities, although some accidents occurred outside the city limits. The number of deaths within city limits was 515, contrasted with 491 for the corresponding period of 1930. For the fifty-two week periods ended February 21 and Feb. 22, 1930, the totals for the eighty-one cities were, respectively, 8,937 and 8,668, which indicate a recent rate of 25.6 per hundred thousand of population as against an earlier rate of 25.3. Eight cities reported no deaths from automobile accidents during the four weeks, compared with five cities for the corresponding period in 1930.

"Jake" Paralysis Still Being Reported.—The U. S. Public Health Service recently announced that cases of jamaica ginger paralysis are still occurring in the United States. It was announced some time ago that the cause of jamaica ginger paralysis had been determined to be triorthocresyl phosphate, which evidently had been used as an adulterant in the manufacture of jamaica ginger extract. It is desired to give publicity to the fact that all persons should avoid the use of jamaica ginger extract as a beverage. No cases of this poisoning have been reported in connection with the use of any other ginger products or preparations, it is reported, the cases observed having been associated with the improper or illicit use of jamaica ginger extract. It had not been determined, February 16, whether the recent cases had been caused by the use of the older preparation or whether it is a new product being marketed by unscrupulous manufacturers. Newspapers, February 3, reported twenty-five cases in Los Angeles and thirty cases were reported, March 3, among inmates of the National Soldiers' Home Hospital at Sawtelle, Calif.

Medical Bills in Congress.—S. 255, the Jones maternity, infant and rural hygiene bill, failed of passage, its proponents having been unable to secure a vote in the Senate on the substitute bill passed by the House. S. 1812 has been signed by the President, authorizing the collection of annual statistics relating to crime and to the defective, dependent and delinquent classes. S. 5139 has been signed by the President, extending the provisions of certain laws relating to vocational education and civilian rehabilitation to Porto Rico. S. 5659 has been signed by the President, authorizing the purchase by the federal government of the state laboratory at Hamilton, Mont., constructed for the prevention, eradication and cure of spotted fever. S. 6171 has been signed by the President, regulating the prescribing and use of waters from the Hot Springs National Park at Hot Springs, Ark. H. J. Res. 480 has been signed by the President, authorizing an appropriation to defray the expenses of participation by the United States in the Conference on the Limitation of the Manufacture of Narcotic Drugs, to be held at Geneva, Switzerland, May 27. H. R. 16982 has been signed by the President, authorizing an appropriation of $20,877,000 to provide additional hospital, domiciliary and outpatient dispensary facilities for persons entitled to hospitalization under the World War Veterans' Act, 1924, as amended.

Society News.—The annual meeting of the recently organized Western Branch of the American Public Health Association will be held in Seattle, May 28-30, with headquarters at the Olympic Hotel. Local arrangements are in charge of Dr. Erestus T. Hanley, city health officer. The secretary is Dr. William P. Shepard, 600 Stockton Street, San Francisco.——The Medical Library Association will hold its annual meeting, May 19-21, in New Orleans.——At the annual meeting of the Tri-State Medical Association (Tennessee, Mississippi, Arkansas), February 17-20, Dr. Andrew G. Payne, Greenville, Miss., was installed as president, and Dr. Lowry H. McDaniel, Tyronza, Ark., was made president elect. On the program were Drs. William B. Coley, New York, Russell L. Haden, Cleveland, Theodore C. Hempelmann, St. Louis, John Shelton Horsley, Richmond, Va., Cyrus C. Sturgis, Ann Arbor, Mich., and William Gerry Morgan, Washington, D. C. The association, which is in its forty-seventh year, changed its name to the Mid-South Post-Graduate Medical Association.——Dr. Beverley R. Tucker, Richmond, was elected president of the Tri-State Medical Association of Virginia, North Carolina and South Carolina at its thirty-third annual meeting, February 16-17, at Richmond. The next meeting will be in Raleigh, N. C.——Homer N. Calver, for seven and a half years executive secretary of the American Public Health Association, resigned, January 1. W. Frank Walker, D.P.H., a member of the association's staff, is acting executive secretary pending the appointment of Mr. Calver's successor.

Bequests and Donations.—The following bequests and donations have recently been announced:

Jewish Hospital, Philadelphia, $10,000 by Mrs. Henry Fernberger, Philadelphia, to defray the expense of equipping a new electrotherapeutic department.

Long Island College Hospital, Brooklyn, $25,000 by the will of the late Percy S. Dudley.

New York Institute for the Deaf and Dumb, $5,000 by the will of its late president, Samuel Rossiter Betts.

Lebanon Hospital, Beth Israel Hospital and Jewish Memorial Hospital, all of New York, each $5,000 by the will of the late Abraham Savada.

Long Island College Hospital Alumnae Association, $30,000 by the will of the late Miss Anna M. Wilbur.

Fifth Avenue and St. Luke's hospitals, New York, each $100,000 by the will of the late Adolph L. Gondran.

Jewish Hospital, $10,000, and $500 each to the University, Jefferson and Temple hospitals, all of Philadelphia, by the will of Henry L. Weinberger.

Jefferson Medical College, $30,000, for the establishment of four scholarships for the education and maintenance of "deserving young men whose means are limited," by the will of Dr. William T. Hamilton.

All Souls and Morristown Memorial hospitals, Morristown, N. J., each $25,000 by the will of Gertrude L. Thebaud.

Hackensack Hospital, Hackensack, N. J., and Passaic General Hospital, Passaic, each $25,000 by the will of Frederick L. Atkins.

Millard Fillmore Hospital, Buffalo, $28,248.23 for the establishment of a memorial by the will of the late Dr. Francis Marion Rich.

Maryland School for the Blind, Overlea, and the Hospital for Consumptives of Maryland, Towson, each $10,000, and the Presbyterian Eye, Ear and Throat Charity Hospital, Baltimore, each $3,000 by the will of Miss Margaret E. Maund, Baltimore.

Woman's and Harper hospitals, Detroit, each $2,500 by the will of Richard P. Joy.

Johns Hopkins Hospital, $50,000 in addition to sharing with Johns Hopkins University in the ultimate distribution of the residue of the estate, at which time the institution will receive $700,000; Children's Hospital School, Baltimore, and Hospital for Consumptives of Maryland, Towson, each $10,000, and the Baltimore Eye, Ear and Throat Hospital, $2,500 by the will of the late Mr. William A. Marbury.

Union Memorial Hospital, Hospital for the Women of Maryland and Johns Hopkins Hospital, Baltimore, will receive one half, three tenths and two tenths, respectively, of the major portion of a $600,000 estate by the will of the late Francis Burns Harvey, Baltimore.

Roosevelt Hospital, New York, $10,000; New York Skin and Cancer Hospital and St. Mary's Free Hospital for Children, $5,000 each, and St. Luke's Hospital, New York, $3,000 by the will of the late Mrs. David H. Lydig.

Monmouth Memorial Hospital, Long Branch, N. J.; Stony Wold Sanatorium, Lake Kushaqua, N. Y., and Montefiore Hospital, New York, each $3,000, and Mount Sinai Hospital, New York, $7,500, by the will of the late Mrs. Edgar J. Kahler.

University of Texas, Galveston, $10,000 by the will of the late Dr. Benjamin O. Thrasher, El Paso, the amount to be used for the medical department of the university; Dr. Thrasher's preference was that the sum be used in connection with the chair of mental diseases in the university.

Jewish, Jefferson and Pennsylvania hospitals, and the Federation of Jewish Charities, all of Philadelphia, each $1,000 by the will of the late Joseph E. Sulzberger.

University of Chicago, about $1,000,000 for medical research; Michael Reese Hospital, $500,000; Jewish Charities of Chicago, $50,000; St. Luke's Hospital, $10,000, all of Chicago, and National Jewish Hospital for Consumptives, Denver, $5,000, by the will of the late Albert Kuppenheimer.

Wilmington General Hospital, Wilmington, Del., $200,000 for the building of a contagious disease ward, from Mr. and Mrs. Irenee du Pont.

Germantown Dispensary and Hospital, Philadelphia, $30,000 as a fund to found free beds in the men and women's wards, by the will of Miss Helen Huber.

Hahnemann Medical College and Hospital, Philadelphia, $100,000 outright and $10,000 for endowing beds by the will of the late Miss Fanny Augusta Shortridge.

Presbyterian Hospital, Philadelphia, $20,000 by the will of Col. William J. Elliott.

Hospital for Joint Diseases, New York, $1,000,000; Mount Sinai and Lebanon hospitals, New York; St. Joseph's Hospital, Far Rockaway, and National Jewish Hospital for Consumptives, Denver, each $5,000; Montefiore Hospital, $10,000; Bar Moriah Hospital and Beth Israel Hospital, New York, each $2,500 by the will of the late Alfred M. Heinsheimer.

Government Services

Army Personals

Majors Frank N. Stiles and Wayne R. Beardsley and Capts. Amos S. Kinzer and Arthur Morehouse having been found incapacitated for active service by an army retiring board on account of disability incident thereto, their retirement is announced, effective Nov. 30, 1930; Capt. William J. Freebourn proceeded to his home about Nov. 30, 1930, to await retirement for the convenience of the government; Capt. James E. Yarbrough is relieved from duties at Walter Reed General Hospital, Washington, D. C.; he sailed about January 8 for Porto Rico; Capt. Ray H. Skaggs is relieved from duties at San Juan, P. R., effective on completion of present tour of foreign service, and is assigned to duty at Walter Reed General Hospital; Capt. William C. Williams is assigned to duty at the Army Medical Center, Washington, D. C., effective on completion of his present tour of foreign service; Capt. William D. North sailed from San Francisco about February 28 for duty in the Panama Canal Department; Major William C. Porter sailed for San Francisco about February 17 for duty in the Letterman General Hospital; Capt. Meyer McC. Dougherty, relieved in the Philippine Department, and assigned to duty at Letterman General Hospital, Presidio of San Francisco; Capt. Arthur E. Brown, relieved at Walter Reed General Hospital, Army Medical Center, Washington, D. C.; he will sail about May 5 from New York for the Philippine Department; Capt. Dean M. Walker will sail from San Francisco about April 9 for duty in the Hawaiian Department; Major Bonaparte P. Norvell, assigned to duty at Miller Field, New York, effective on completion of his present tour of foreign service; Capt. Chester B. Leedom will sail from New York about May 26 for duty in the Hawaiian Department; Major Leland E. Dashiell is assigned to duty at Letterman General Hospital, San Francisco, effective on completion of his present tour of foreign service; Lieut. Comdr. Toson O. Summers from the naval station, St. Thomas, V. I., to the U. S. Naval Hospital, New York; Lieut. Clyde M. Longstreth from the first brigade, U. S. Marines, Haiti, to the naval air station, Hampton Roads, Va.; Lieut. George W. Cooper from the Public Health Service of Haiti to the U. S. S. *Sacramento*.

U. S. Public Health Service

Asst. Surg. Edward J. Reneke has been relieved from duty on Coast Guard Cutter *Sebago*, New York, and assigned at marine hospital, New York; Asst. Surg. Frank F. Thweatt, Jr., relieved at Ellis Island, N. Y., and assigned in charge at marine hospital, Vineyard Haven, Mass.; Asst. Surg. Maurice A. Roe relieved at Manila, P. I., and assigned to duty at marine hospital, San Francisco; Asst. Surgs. Vane M. Hoge and Roscoe C. Kash, relieved at marine hospital, New York, and Ellis Island, N. Y., respectively, and assigned to duty at the National Institute of Health, Washington, D. C.; Passed Asst. Surg. Francis A. Ashford, relieved at Dublin, Irish Free State, and assigned at Ellis Island, N. Y.

Vacancies in Government Positions

The U. S. Civil Service Commission announces that it is in need of eligibles to fill the following medical officer positions:

Acting assistant surgeon, U. S. Public Health Service, Galveston, Texas, $3,800 a year.

Acting assistant surgeon qualified in trachoma work, U. S. Public Health Service, Ellis Island, N. Y., $3,000 a year.

Acting assistant surgeon for work in pathology, U. S. Public Health Service, Ellis Island, N. Y., $3,600 a year.

Medical officer qualified in neuropsychiatry, U. S. Veterans' Bureau, San Francisco, $3,800 a year.

Full information may be obtained by addressing the U. S. Civil Service Commission, Washington, D. C.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Feb. 14, 1931.

The Milk Problem

In the House of Lords, speaking on a plea made for a national effort to increase the supply of milk by increasing the demand by means of propaganda, Lord Moynihan supported the project, with qualifications. He said that milk was often contaminated, with the result that it caused a number of diseases. A hundred people died every day from tuberculosis and $1,250,000 a day was spent in this country on the treatment of tuberculosis, a large proportion of which was preventable. Of the 3,250,000 cows in this country giving milk, more than 1,000,000 were tuberculous. What was to be done? If they slaughtered all tuberculous cows, he thought it would be ineffective except as regards the immediate result. To immunize the animals would be a matter of great difficulty and uncertainty. The problem was to improve the present condition of the milk supply. Boiling would destroy all the organisms and was inexpensive. Every drop of milk taken into his house was boiled. There were some disadvantages, but the nutritive value, contrary to general opinion, was not diminished. However, the vitamins were destroyed, and from the point of view of general consumption the value of the milk was reduced. Another method was pasteurization. Ninety per cent of the milk in London and Manchester was pasteurized. But it was essential that the machinery of pasteurization should be constantly supervised and the greatest possible bacteriologic control exercised at every stage. The milk for pasteurization should be as pure as possible. There was no doubt that an increased supply of milk was necessary, and it might be well if the government would set up a commission to reconstruct all the knowledge that had been obtained about the problem.

Replying for the government, Earl de la Warr, parliamentary secretary to the ministry of agriculture, blamed the medical profession. One reason why more clean milk was not produced in this country was the lack of demand. If physicians would talk a bit less about dirty milk and do a little more to encourage the buying of the clean milk already on the market, they would be of more use to the nation. (Here Lord Moynihan interjected: "We want you to produce pure milk. Until that is done we suggest pasteurization.") The total production of milk in this country was 1,100,000,000 gallons, of which about 600,000,000 was consumed as liquid milk. To bring our consumption up to that of the United States we would require 700,000,000 gallons more than we were producing at present; and if we consumed as much milk a head as was consumed in Sweden we should need a supply of 3,600,000,000 gallons. He agreed that our grade designations were unsatisfactory, but the problem was difficult and if he could get general support for a revision he would be only too glad to discuss the matter with the producers.

Institution for Surgical Research

The Royal College of Surgeons has made greatly increased provision for surgical research. It has accepted the offer of Mr. George Buckston Browne, a retired genito-urinary surgeon, to build and endow an institution of surgical biologic research on an estate at Downe, in Kent, which he will present to the college. The estate is 16 miles from London and adjoins the western side of Darwin's old home, which, with its 23 acres of land, was presented by the same benefactor to the British Association to be preserved as a museum of Darwin relics and a memorial. Mr. Browne is willing to endow the new estate with an initial sum of $250,000 and to add further gifts and legacies until the total amount reaches $500,000. In a letter to Lord Moynihan, president of the college, Mr. Browne states

his belief that those who add to the science and art of surgery are among the greatest of all benefactors of the human race and the domesticated animals. He therefore wishes to form an institution in which surgeons, and particularly young surgeons, will have full opportunity to carry out their investigations. The institution will contain three or four laboratories where investigations can be made under the best conditions, or where living animals can be carefully observed and cared for. The detailed work of examining the results will be carried out in the laboratories of the Royal College of Surgeons in London, in connection with which four research scholarships have recently been founded. There is therefore no need to provide pathologic laboratories at Downe. The direction of the preliminary stages of the project is to be entrusted to the conservator of the museum, Sir Arthur Keith. The endowment is intended as a second stage in a scheme for making the college a center of surgical research for the empire as a whole. The president, Lord Moynihan, has taken an active part in the new step. It may be remembered that recently, both in Toronto and in London, he complained that the researches of physiologists were remote from the needs of surgery. No doubt the researches at the Institution of Surgical Research will be designed for the solution of surgical problems.

Enlarged Tonsils, Rickets and Dental Disease

In a second interim report, the Committee of the Board of Education on Adenoids and Enlarged Tonsils discusses the association of these diseases with rickets and dental disease. It finds that extensive enlargement occurs with somewhat greater frequency among children showing signs of rickets, dental disease and hypoplasia than among those who do not show such evidences of vitamin deficiency. The association that has been shown to exist between these conditions and the more extensive adenoid growths, though not dramatic, is too extensive to be regarded as a coincidence. These growths occur more frequently among children showing several signs of rickets, in the proportion of about 5 to 3, among children showing extensive caries in the proportion of 4½ to 3, and among those showing severe hypoplasia of the teeth in the proportion of 5 to 3, as compared with children not having such defects. The nature of the relation, however, is not definitely established. The social factors which, taken together, enable the general "class" of one school to be distinguished from that of another, while they definitely affect the incidence of rickets and caries, have no effect on the incidence of adenoids. This is in harmony with the results of the previous investigation, in which no substantial difference was found in the average extent of the domestic accommodation between the cases and the controls. It seems that the habits of life which predispose to the growth of adenoids are as common in the roomy houses of the comparatively well-to-do as in those of the poorest class.

Archibald Leitch is Dead

Professor Archibald Leitch, director of the research department of the Cancer Hospital, London, has died at the age of 52. Born, June 3, 1878, he graduated in medicine from Glasgow University with distinction. He became house surgeon at the Cancer Hospital, where he decided to take up cancer research. He was appointed assistant to Prof. Lazarus Barlow, director of the Cancer Research Laboratory of the Middlesex Hospital. In 1920 he became director of the reseach department of the Cancer Hospital. He energetically took up the study of experimental carcinogenesis begun by the Japanese workers Yamagiwa and Ishikawa—the production of cancer by applying tar to the skin of rabbits or mice. He discovered the important fact that when the application was made for a shorter period than that required to produce visible changes in the skin—the method of previous investigators—cancer ultimately developed on the apparently unchanged skin after an interval of a certain number of months in some of the animals. This explained those cases in which pitch, tar or shale oil workers developed cancer, years after they had taken up another occupation. He studied occupational cancer and tested various materials, including tars, shale oils and lubricating oils, for their carcinogenic properties. In conjunction with Kennaway he showed that substances which are not carcinogenic can be made so under the influence of high temperature and therefore suggested that there may occur in the body at normal temperatures processes having effects similar to those which are produced by great heat outside the body. He was the editor of the report of the British Empire Cancer Campaign Conference, held in London in 1928, and secretary of the scientific investigation committee, and a member of the grand council and other committees of the campaign.

Vital Statistics: The Falling Birth Rate

In the final volume of the registrar-general's statistical review for 1929, just published, the severe epidemic of influenza, which occurred in the early part of the year, is described as the worst since the epidemic of 1918-1919, which followed the war and increased the general mortality by 16 per cent as compared with the previous year. Satisfactory features of the report are reduction from the mortality of diabetes under the age of 55 since the introduction of insulin, and reduction in the mortality from pernicious anemia since the introduction of liver treatment. In 1921 the next inequality was expressed by the ratio of 1,096 females to 1,000 males; in 1929 the ratio was 1,086 to 1,000. The marriage rate (15.8 per thousand of population) was slightly higher than in the previous year and was the highest since 1921. The birth rate (16.3 per thousand) was the lowest ever recorded. The rise in the average age of the population, produced by the constantly falling birth rate, is shown by the fact that the deaths of persons over 70 numbered 389 per 10,000 of population, against 297 in 1911. During 1929, 98 centenarians died, 25 men and 73 women. The striking feature of the report is the maintenance of the marriage rate, which is somewhat above the prewar level, notwithstanding the industrial depression. The fall in the birth rate, which is lower than in any other country, with the exception of Sweden, is considered the more serious, since our position in relation to other countries was already low before the war. France, which used to be held up in this country as the great example of the evil of a low birth rate, has a rate about the same as before the war, so that instead of being the lowest the rate is now above that of England, Norway, Sweden and Switzerland.

Traffic in Dangerous Drugs

The committee of the League of Nations on traffic in opium and other dangerous drugs has concluded its report for the session. It regrets that a large number of states have not ratified the convention. Illicit traffic, particularly during 1926-1929, has been found to have been on a more colossal scale than was suspected. A remarkable change was produced at the beginning of 1930 by putting in force the Geneva convention in the remaining European countries other than Turkey, and by bringing under full control the esters of morphine. In the years 1925-1930 some 36 tons of morphine was apparently available for illicit traffic in the form of esters or, possibly, of other drugs. Some 21 tons of morphine appeared to have been exported to the nonmanufacturing countries in excess of medical needs. At the moment when this grave situation appeared to have been remedied by the strict application of the Geneva convention of putting morphine esters under control by several countries, a new danger suddenly appeared in the form of the manufacture on a large scale of morphine and heroin in Turkey, which is not a member of the league or a party to the opium conventions. The year 1930 was marked by a striking decrease in the manufacture and export of drugs in some of the chief manufacturing countries of Europe and by a notable decrease in seizures of drugs from these countries, but by immense seizures of morphine and heroin, which in a number of cases were known to

have originated in Istanbul. But the committee notes with satisfaction the declaration of the Turkish representative that the Istanbul maritime authorities have received orders to verify exports. However, the committee holds that only the measures of control provided by the Geneva convention, particularly the import certificate system, will make possible the remedy of a state of affairs which is a menace to the whole world.

The Intravenous Use of Germicides

At a joint meeting of the sections of surgery and pathology of the Royal Society of Medicine, Mr. Zachary Cope opened an important discussion on the intravenous use of germicides. He included under germicides any substance that would kill germs, either directly when brought into contact with them or indirectly by unfavorably affecting their environment in the body. To be of value a germicide should have only a small toxic action on the body in the dose employed. Germicidal efficacy might be estimated in the test tube or in animals. The supreme test is the clinical effect in man. For example, arsphenamine is ten times as lethal to the Leishman-Donovan body in vitro as antimony and potassium tartrate, but is no good for leishmaniasis, whereas antimony and potassium tartrate is a specific. Intravenous therapy has been more successful with protozoa than with bacteria, as shown in syphilis, frambesia, relapsing fever, dysentery and malaria. According to Professor Fleming, none of the ordinary antiseptics have a bactericidal effect in the blood stream. Intravenous arsphenamine has proved effectual in malignant pustule but useless for the septicemic form of anthrax. The treatment of bacterial diseases by intravenous injection is not on a sound foundation. Laboratory tests are doubtful and clinical results conflicting. Ethylhydrocupreine in pneumonia and "Sanocrysin" in tuberculosis have proved disappointing and dangerous. For severe septic infections, no reliable drug has been found. A good trial has been given both to mercurochrome-220 soluble and to the aniline dyes, but no one can continue to believe that antiseptics can have any direct effect on organisms in the blood stream except in a strength that would be poisonous to the patient. Any effect due to them must be indirect. Young of Baltimore is an enthusiast for mercurochrome, but others who have given it a fair trial have had nothing but failures.

Professor Fleming, bacteriologist in the inoculation department of St. Mary's Hospital, said that the bactericidal power of the blood was centered in the leukocytes, but that germicides damaged these more than they damaged bacteria. This applied to eusol, mercurochrome, flavine, gentian violet and "Sanocrysin." Although these results held out no hope of exerting a direct bactericidal action, high dilutions of arsphenamine, not in themselves bactericidal, appeared to increase the bactericidal power of the blood for *Streptococcus pyogenes*. This action he was unable to explain.

Outbreak of Paratyphoid Due to Infected Milk

An outbreak of paratyphoid (B) fever has occurred in Essex, near the eastern border of London. Between February 1 and 14 there were 172 cases. The illnesses in many cases were severe, but only four cases proved fatal. Inquiries made by the ministry of health in conjunction with the local health officers appear to show that the outbreak was due to infection of the milk supply on a particular farm. The infections seem to have been introduced by one of the employees who, unknown to himself, was suffering from a mild attack of paratyphoid fever while at work and handling the milk for distribution. For several days, milk thus infected was consumed by a considerable number of persons in the surrounding districts. At the farm in question, all those suspected of possibly carrying the infection, including the man mentioned, have been removed to a hospital. The distribution of milk from the farm was stopped for the time necessary for thorough disinfection of the premises and utensils.

PARIS

(From Our Regular Correspondent)

Feb. 4, 1931.

The Excess of Physicians

Dr. Cibrié, general secretary of the Confédération des syndicats médicaux français, has published an article describing conditions that make the practice of medicine in France more difficult and emphasizing that it is time to make serious efforts to divert young men from this difficult career. He points out that the minimal expenditure for the long years of study, for the practitioner of the most modest ambitions, is $4,400, and that the amount reaches more than twice that sum if the graduate desires to prolong his studies and to take the various competitive examinations that lead to the modest positions in the medical schools or to posts on the medical staffs of hospitals. According to the census of 1928, there were 28,380 practicing physicians in France, as compared with 16,480 in 1901, or an increase of 12,900 physicians for a population that has increased, during the interval, only by two million inhabitants. The number of students of medicine has increased from 8,779 in 1911 to 14,574 in 1929, and the trend is still upward. A committee has been appointed by the confederation to study the question of the excess of physicians and to devise the best means of remedying it. The committee, on which five professors are serving, addressed a circular letter to the professors of the medical schools in France. Eighty-six replies were received, which were almost unanimous in support of the following measures as a means of solving the problem: 1. For admission to the study of medicine, in addition to preparatory work in the sciences, preparatory courses in both Greek and Latin should be required. 2. Instruction in the natural sciences, physics and chemistry, the so-called premedical sciences, which is now given in the facultés des sciences, should be assigned to the facultés de médecine. 3. After the first months of medical studies properly so called, students who are manifestly unsuited for the study of medicine should be definitively eliminated. 4. Certain methods of instruction should be modified so as to make the student realize, during his medical course, the principal performances of current medical practice. 5. The examinations should be made more severe and should be given twice a year on fixed dates, with one or two written tests that do not bear the name of the student and that are submitted to a board of examiners not previously announced. These methods were applied to the schools of law, which were likewise overcrowded, and the number of students was reduced by 50 per cent, with the result that some students who failed to secure admission to the schools of law were diverted to the schools of medicine. Finally, the committee demanded the prompt consideration of the bill filed in the chamber of deputies by Dr. Ambruster, which provides for the elimination of the special favors that foreign students and physicians at present enjoy in the form of *équivalences*, or advanced credits for examinations taken in their own countries, together with the requirement that every foreign physician under 30 years of age desiring to practice medicine regularly in France be required to become naturalized, when such physician has come from a country in which naturalization is required of French physicians desirous of practicing in that country. These favors have been liberally accorded to foreign students in the past because it was assumed that they would return to their own countries to practice medicine, after completing their studies in France. However, it has been observed that nearly all such foreigners, after securing their diploma under conditions that are not as severe as are required of French citizens, settle in France. The percentage of foreign students in the facultés françaises has risen from 12 per cent in 1900 to 25 per cent in 1929, whereas the number of French physicians admitted to practice in foreign countries is almost nil. Furthermore, one cannot fail to recognize that these foreign physicians who are locating in France, with the exception of a

few laboratory specialists, are not of the best quality. In Paris, of ten medical scandals in which physicians are summoned before the courts, seven concern foreign physicians.

Responsibility of the Government for Misdemeanors of Mental Patients

The Conseil d'état rendered recently a decision that may have, in the future, serious consequences, for its decisions have always the character of finality, as those of the supreme court, and, in interpretations of existing laws, establish the jurisprudence until some new law is enacted. A dangerous mental patient had been interned in the departmental psychopathic hospital of Basses-Alpes. The chief physician, after a time, considered him cured and dismissed him. But the patient presented anew signs of hyperexcitation and uttered grave threats against one of his neighbors. The mayor of the village informed the prefect of the department and requested that the patient be interned again. The prefect did not comply with the request of the mayor and one day the patient killed his neighbor. The widow and the daughter of the victim served notice on the government that they held it responsible for the death and claimed compensation. The minister of the interior did not reply but contented himself with transmitting the papers to the minister of public health, who also failed to reply, considering that the minister of the interior was alone responsible for the acts of his prefects. The mother and daughter addressed themselves therefore to the Conseil d'état, which approved their claims and declared that the minister of the interior was responsible, the mayor having taken promptly all the steps required by the regulations. The government will accordingly pay $800 to the daughter of the victim and an annuity of $120 to the widow during her lifetime. This decision is important. There are in the small villages of the rural districts many mental patients whom the mayor, in spite of the recommendations of physicians, refuses to commit to a psychopathic hospital when they are indigent, since, in that case, the cost of their stay in the hospital falls on their municipality. The physicians deliver to the mayor certificates of commitment but the mayors do not order the internment so long as the patient shows no signs of becoming violent. In the case cited, in which the Conseil d'état rendered a decision, the mayor had done his duty. The prefect had failed to do his duty and the state is responsible for the acts of its prefects. As yet, the responsibility of the chief physician of the hospital who had dismissed a mental patient who was still dangerous has not been brought up. That is, however, a frequent occurrence when the hospitals are crowded and room must be found for new patients. Some day perhaps a case will be brought before the courts to decide the question of the secondary responsibility of the government for the acts of the medical director of a public establishment. The tendency of present-day legislation is to grant an individual damages for injuries that he suffers without being personally at fault.

Protection Against Toxic Gases

Before the Academy of Sciences, Prof. Charles Richet presented recently a communication from Mr. Marcille in which the author brought out that no filtering apparatus will protect the wearer against the great variety of toxic gases at present known (there are more than a thousand). The only protection would consist in having the subject breathe in an elastic vessel isolated from the atmosphere, in which the carbon dioxide is absorbed by an alkali and in which the oxygen is constantly renewed. The most toxic gases will then have no effect. Mr. Marcille demonstrated an apparatus constructed on this principle.

Free Instruction for Abnormal Children

A curious case was tried recently before the tribunal de la Seine. There is in Paris a national institute for the education of deafmutes, which is more than a hundred years old. The parents of the pupils are compelled to pay for the cost of their education, especially as they receive also board and lodging. This year, a number of parents got together and decided to refuse to pay the cost of the board of the pupils, assigning as their reason that the law of June 16, 1881, provided for free compulsory education. The court decided naturally against the parents, for the parents are under no compulsion to place a deafmute in the Institut national des sourds-muets; they may keep him at home or they may place him in any public or private institution—whether free or subject to charges. The court merely expressed its regrets that there are not as yet a sufficient number of free institutions in which deaf and dumb children are fitted to associate with their fellow citizens on a normal intellectual basis. But the court declared that it was impossible for it to give to the law pertaining to free compulsory education an interpretation that was not intended.

Death of Prof. Georges Weiss

The death of Prof. Georges Weiss, honorary dean of the Faculté de médecine de Strasbourg, at the age of 72, is announced. Born at Bischwiller, Alsace, in 1858, he left his home after the annexation of Alsace by Germany. He entered the Ecole polytechnique de Paris and obtained the degree of "engineer of bridges and highways." He soon abandoned this career to take up medical studies and became associate professor, and later professor, of medical physics at the Faculté de médecine de Paris, in 1901, succeeding Professor Gariel. In 1907 he was chosen member of the Academy of Medicine, and in 1918 he became dean of the Faculté de médecine de Strasbourg. His publications deal chiefly with physiology, optics and electricity in relation to medicine.

BERLIN

(From Our Regular Correspondent)

Feb. 2, 1931.

The Down-Swing of a Charlatan

Zeileis, the charlatan of Upper Austria, was widely known for his high frequency "treatment"; that is to say, he held a high frequency tube aloft in his hand, the rays from which "healed," in the shortest space of time, many gullible followers. The maneuvers that he went through do not deserve at all the name of treatment but consisted merely in the waving of the sputtering tube over the heads of his patients as they marched past him. Nevertheless, hotels sprang up in Zeileis' small village almost over night, while unheard-of crowds of patients flocked to see him. In spite of the existence of a law against charlatanry, the governor of the province made no move to check the shameful spectacle, and it was whispered that the whole region round about drew too much profit from the pockets of Zeileis' followers. Zeileis institutes were opened everywhere —in Austria, Czechoslovakia and Germany. Even physicians became directors of such institutes (this fact is referred to among the "nature doctors" and among the people as "the crisis in medicine"). Fortunately, however, these "colleagues" failed, for the most part, to make much money out of their ventures, for, it was alleged, real benefit from the Zeileis treatment could come only from the Upper Austrian village of Gallspach. An attempt was made—as so often—to combat the fraud by the publication of scientific articles but of course without success; for the readers of the scientific articles are not the persons who go to the charlatan. These things must be viewed with something of the mind of the fatalist. Sooner or later the swindle will run its course. And, judging from newspaper accounts, so it is with this fraud. As the zenith of prosperity was reached some time ago, now the numerous hotels and shelters that sprang up are all empty. It is said that forty-two such buildings have gone into the hands of a receiver and are to be sold at auction. Apparently the down-swing began with the typhoid epidemic last summer. But the chief blow doubtless came from the many suits brought by the "cured"

patients before the Vienna courts. The persons whose health had been injured (not only by fraudulent treatment but still more by the loss of valuable time during which they might have had proper treatment) formed a committee to bring against Zeileis a joint suit for damages. Nothing is heard now of the Zeileis institutes in the various cities. What and who will be next?

The Number of Illegitimate Births

The absolute annual number of illegitimate births in Germany is more than 12 per cent lower than during the prewar period; but the proportion of illegitimate births to the total number of births in Germany is still 20 per cent higher than during the prewar period. The number of illegitimate births per thousand unmarried women is today less than during the prewar period and is constantly declining, in spite of the present large excess of women over men, in Germany. The illegitimate births are decreasing at nearly the same rate as the legitimate births, whereas, in many other countries, they are increasing. In Chile and Cuba the number of illegitimate children is very high; in Italy, England, the Netherlands, Switzerland and Norway, the percentage of illegitimate births is, on the contrary, extremely low; in Germany and Austria, France, Ireland, Hungary, Sweden, Denmark and Spain, it is about the average for Europe and for years has not varied much.

New Forms of Gold Treatment

Injection therapy with gold has the disadvantage that occasionally, on account of too great toxicity of the compounds employed, undesirable secondary effects, more particularly exanthems, appear. It is, therefore, an important advance that now the action of this therapeutic remedy when administered orally has become known. Gold develops a catalytic action as one of the so-called heavy metals. It accelerates oxidation in animal experiments and produces chemical changes. Freund, an assistant physician in the v. Bergmann Charitéklinik, treated, as he reported at a meeting of the Berliner Medizinische Gesellschaft, orally chronic infectious arthritis and chronic polyarthritis, in which a pathogenic connection with previous infections was to be assumed. Cases were selected more particularly that were refractory to treatment with salicylic acid, irritants and heat. During gold therapy no supporting measures are to be employed. There were a number of failures but nevertheless such a large number of controlled successes that already oral therapy as a method of treatment in general practice can be recommended, especially as no untoward instances of importance were observed. Occasionally, during the beginning of the treatment, focal reactions taking the form of increased pains in the joints, with some diarrhea, appeared but disappeared again without any change in the mode of treatment. Film pictures were shown of patients who, for a long time, had been unable to work, some of them having been confined to bed. They show great improvement in the mobility of the joints, while some have learned to walk again without a cane and have become able to work. As a rule, the gold treatment was begun after fourteen days' stay in the hospital and always as the sole mode of treatment. The point of attack of the gold is the mesenchymal apparatus. In contrast with irritants, by means of which a marked and sudden change of reactivity is brought about, this preparation acts gradually by the oral route. The sulphur is not split off from these compounds.

A New Tuberculosis Hospital

The government hospitals and the university clinics have so few beds for hospital patients that they do not play any considerable part in the crusade against tuberculosis, nor do they furnish any regular and adequate material for the clinical instruction of students. There are, however, a few tuberculosis hospitals in Germany, some of which have a large number of beds (the Sommerfeld Krankenhaus, 400 beds; the newly erected Beelitz Krankenhaus, 1,200 beds), but which have no connection with the universities, so that their patients cannot be utilized for scientific instruction. It is the merit of Albert Fraenkel, the Nestor of the tuberculosis specialists, that through the reconstruction of the "Rohrbacher Schlösschen," near Heidelberg, an institution has been created which makes possible the care of tuberculosis patients of all stages; which has likewise an aid fund, and which combines the practical treatment of tuberculosis patients with scientific research and clinical instruction. Fraenkel is doubtless correct in his assertion that the health centers alone cannot be expected to do adequate work in the crusade against tuberculosis. For the effective combating of tuberculosis, internment of the advanced cases is needed, and especially of the bacillus carriers; secondly, a system of ferreting out early cases and the supervision of tuberculous patients by the physician during the remainder of their lives. The first demand is met by the tuberculosis hospital; the second by the welfare aid system. Only through close cooperation of the tuberculosis hospital and the welfare aid system is a crusade against tuberculosis that promises success at all possible. The Rohrbacher Schlösschen is a beautiful, well preserved structure, and in its reconstructed form is a modern tuberculosis hospital with accommodations for about a hundred patients. Owing to the fact that not more than three patients occupy one room (there are also many single rooms), the hospital has more the character of a sanatorium, which is of the greatest importance for the mental well being of the patient. The institution has a close connection with the institutes of the University of Heidelberg.

Neuroses of Genital Origin

A recent session of the Verein für innere Medizin, held in Berlin, was devoted to the memory of its deceased honorary chairman Prof. Paul Fürbringer. The chairman, Professor His, discussed before the assembly the development of the theory of genital neuroses in males, a subject studied by Fürbringer for half a century. The disorder is mentioned by Hippocrates, although the modern treatment began in France in the fore part of the preceding century. Furbringer's researches have great value owing to the detailed critical description of the symptoms. But with the interpretation it is different. From this angle, modern research on the hormones and on the psychologic aspects of the subject have brought great progress. Privatdozent Dr. Kronfeld reported on these phases. He emphasized especially the value of studies on the personality of the subject and of the psychoanalytic method. The wavering self-valuation of these patients, which points to an abnormal relation between the ego and the natural instincts as the nucleus of the neurosis, can be pregnantly understood psychoanalytically from the history of the superego conceptions and the various phases in the development of the libido. From this fact it follows that psychotherapy is of greater value than endocrine treatment.

AUSTRALIA

(From Our Regular Correspondent)

Dec. 30, 1930.

Medical Education in Australia

"Owing to the many new medical subjects that require special attention, it is becoming extraordinarily difficult to include in the present medical course of six years everything which should be taught" was the opinion of Sir Richard Stawell, who delivered the third Halford oration at the institute of anatomy at Canberra, taking as his subject "The Establishment of a Medical School and the Development of Medical Education."

When medical education was first commenced at the Melbourne University, the university council had determined that the curriculum for the degree of bachelor of medicine (M.B.) should consist of a five years' course: this was longer by a year than any systematic course of medical education in the United Kingdom and Ireland. The university, at the time this curriculum was drawn up, was bitterly attacked, but thirty

years later the British Medical Council insisted on the minimum of a five years' course in the United Kingdom.

Sir Richard Stawell traced the development of medicine in Australia and the changes that had been made in the university curriculums to keep pace with it. Experience in the United States, Great Britain and Germany had firmly convinced Sir Richard that the average Australian medical practitioner had a high standard of efficiency when compared with the standard of medical practice in other countries. He ascribed this to the better teaching in hospitals, where the senior students engaged in responsible work under proper control.

The Halford oration, which was endowed by relatives of the late George Halford, founder of the first chair of medicine in the Melbourne University, is given each year.

Vital Statistics

At the end of 1929 the population of Australia reached the total of 6,414,372. The rate of growth during 1929 was 1.22 per cent and for the ten years 1.92 per cent, which is probably the highest rate of increase in the world. Excess of births over deaths contributed 70.5 per cent of the total increase, and net immigration 29.5 per cent. The density of population of Australia is only 2.16 persons per square mile, and varies from one person per hundred square miles in the Northern Territory to 20.22 persons per square mile in Victoria.

The birth rate for 1929, 20.31 per thousand of population, was the lowest ever recorded. Compared with many other countries the Australian rate is low, but it is fortunately accompanied by a low death rate, giving a rate of natural increase that is equaled in few countries. Extranuptial births numbered 4.70 per cent of all births registered. The proportion of multiple births is one case of twins in every 98 confinements and one of triplets in 14,242 confinements. The average number of children per mother was 2.96, against 2.99 in 1928.

During the year, 60,857 deaths were registered, corresponding to a rate of 9.55 per thousand of the population. This rate was slightly above the average of the previous five years but nevertheless compares most favorably with other countries. The principal causes of death were: heart diseases, 15.3 per cent; cancer, 10.3 per cent; violence, 6.0 per cent; cerebral hemorrhage, 5.8 per cent; tuberculosis, 5.7 per cent; nephritis, 5.6 per cent; pneumonia, 4.9 per cent. The number of deaths in childbirth was 5.1 per thousand children born. The infant mortality rate for Australia (deaths of children under the age of 12 months) per thousand children born was 51. This rate is the lowest ever recorded in Australia and is, with the exception of New Zealand, the lowest in the world. The rate for New Zealand is 34.

Health Week

The crystallizing of health education by means of a health week was carried out this year during the middle of November. This activity found its fullest expression in Melbourne and Sydney. In Melbourne there was a celebration of the fact that during last year the infant mortality rate there had been the lowest ever recorded. Health week was conducted under the auspices of the Health Association of Victoria. Mental hygiene was made a feature of the education, but cleanliness, good living, wholesome food and effective control of infectious diseases were the general topics brought to the notice of the public.

Hospital Dietetics

As a result of the interest of Dr. Malcolm McEachern, who visited Australia in 1926, the authorities of the Alfred Hospital in Melbourne were enabled early this year to secure the services for twelve months of Miss Mabel G. Flanley, graduate in home economics of the University at Washington, who took her dietition's training at the Peter Bent Brigham Hospital, Boston. Commencing with a survey of hospital needs and conditions in Melbourne, Miss Flanley has impressed the hospital authorities with the increased efficiency and economy attendant on the application of dietetic science to the feeding of hospital patients. Lectures to diabetic patients have been given regularly. By the standardization of methods of preparation of food, by approximating requisitions more closely to requirements, and by eliminating avoidable waste, a saving to the hospital (350 beds) of £268 during the last six months has been effected.

The dietitian's work has proved of such benefit that she has been asked to extend her visit. Her advice on the planning and equipment of new dietetic departments has been sought by the architects of four hospitals at present under construction in Victoria.

The new kitchen at the Alfred Hospital is to be used as a teaching laboratory for hospital dietitians. It is intended to have two students and two assistants working under the director. The training period will be six months and, among applicants for students, preference will be given to those having the degree of bachelor of science or those who have taken a course in domestic economy and institutional management.

Poliomyelitis in Victoria

For the past four years, the health department of the Melbourne city council has been conducting a campaign against infantile paralysis. Recently, the other city and municipal councils have shared the expense of the campaign. Under the control of a medical director, human serum has been obtained from recovered patients, placed in ampules at the Commonwealth Serum Laboratories, and held in cold storage at Melbourne; latterly it has also been stocked at twelve centers in the country districts of the state. The total cost of the campaign activities last year was £1,000, of which the Victorian government contributed half. In many instances, prompt diagnosis and early treatment had minimized the extent of the paralysis, and the campaign will be continued. Action is being taken in Sydney to provide similar serum treatment.

The "Outback Child" Problem

In New South Wales and Queensland the bulk of the population live along the seaboard, and the inland areas (known locally as the far west) are sparsely populated, the land being used mainly for sheep and cattle grazing. The problem of providing medical and dental services for the children of these areas is one that is exercising medical administrators and charitable associations in Australia. In the far west the medical situation is further complicated by a high incidence of trachoma. Dust, flies and malnutrition are contributing causes to this high incidence.

In providing medical services for these children, school medical inspection, the traveling dental clinic, the child welfare clinic train, the Queensland ambulance service (considered to be one of the most efficient in the world), various inland missions, the "flying doctor" and the bush nursing society all do their magnificent part; but, even so, limitations of time, distance and finance make the problem inherently difficult. The dental clinics of the education department in New South Wales, for instance, are continually traveling, and yet they can visit each place only once every three years. Subsidiary methods of providing services necessitate bringing the children to the centers of population.

In Queensland, the country women's association has organized seaside homes for the accommodation of batches of outback children. The education department of Queensland has established an ophthalmic hostel for the concurrent general education and treatment of the worst cases of trachoma. In New South Wales is a movement called the "far west children's health scheme," organized by the national council of women. The first effort was a seaside camp, where special facilities were provided for medical and dental treatment, such as removal of tonsils and dental attention. Every child is chosen from among hundreds of needy cases by a physician or

a schoolmaster. The child must not only be in need of treatment but must also belong to parents who could not possibly procure help in any other way.

A more recent development of the far west children's health scheme is the appointment of a skilled orthopedic surgeon to travel to country centers to examine and advise on the possibilities of treatment of crippled children who would be selected and assembled by local physicians or schoolmasters. The cases suitable for treatment would then be sent to the state capital.

One of the most recent developments is the airplane ambulance. By this means patients can be transported long distances with comfort; one such patient, with a fractured spine, was brought 1,000 miles from central Queensland to the state capital for operation. In some of the far western towns the local physicians, when bad weather makes the roads impassible, do their country rounds by airplane taxi at a cost of 2 shillings (40 cents) a mile.

JAPAN

(From Our Regular Correspondent)

Feb. 2, 1931.

Fewer Women than Men in Japan

The general census taken Oct. 1, 1930, in this country was successful and the result was published by the government, December 8. The population of Japan proper is 64,447,724, comprising 32,388,369 males and 32,059,355 females, which is nearly double the population in 1872, fifty-nine years ago. According to the Committee for the Investigation of Population and Food Problems, it is estimated that the population of Japan proper will grow to almost 90,340,000 in the next thirty years. The committee, which has handed the draft of its report to the prime minister, points out (1) the necessity of establishing medical consultations for marriages, births and birth control, and (2) the necessity of investigation and research on the facilities of Japan from a eugenic point of view. It also proposed the organization of a permanent committee for the purpose. As to the population, it is strange to find that the number of males exceeds by 329,014 the number of females, 101 males to 100 females. Tokyo has the highest ratio of males to females, 111.9 to 100; next comes Hokkaido, 109.3; then Osaka, 108.9. In large cities and the mining and planting districts, the number of males is greater, while females are more numerous in places with many spinning factories. The smaller number of females is said to be due to the fact that many females die young. Dr. T. Nagai, specialist on problems of population, has published his opinion that Japanese mothers are apt to have another baby soon after they have lost their children. On this occasion of the census, he hopes, the people at large will seriously consider the problem of population.

The Birth Control Union

The organization of the birth control union, in which Dr. Miyajima, member of the Tokyo municipal assembly, has long taken the initiative, has been realized at last. About 200 members met, January 17, for the first time in the Tokyo Physicians' Building at Kanda, Tokyo, under the presidency of Baroness Ishimoto. They decided that: 1. The union shall join in and be affiliated with the International Birth Control Union. 2. The union shall investigate various studies on birth control and make reports of them. 3. The union shall publish opinions in defense against irrational attacks and opinions attacking birth control methods or establishments which are found to be unscientific.

Rockefeller Offers Japan a School of Hygiene and Public Health

Dr. Heiser of the Rockefeller Foundation arrived, November 2, at Yokohama on his way to China. He visited Tokyo to see Mr. Adachi, home minister, Mr. Akagi, chief of the sanitary bureau, and Dr. Teusler, chief of St. Luke's International Hospital, concerning the establishment of a new school of hygiene and public health in Tokyo. After the arrival of Dr. Grand of the same foundation, whose mission was to choose scholarships for young men of medical science or engineering at the Rockefeller Institute in America, the two negotiated with Dr. Miyajima and then officially offered to our government a large sum of money annually for the establishment of the new school.

The home minister, who was glad to receive the generous offer, nominated the following special committee for organization, November 9: advisers, Dr. Hayashi, dean of the medical department of the Tokyo Imperial University; Dr. Kitajima, dean of the Keio Medical College, and Dr. Teusler, chief of St. Luke's International Hospital; chairman, Mr. Akagi, chief of the sanitary bureau; commissioners, Drs. Nagayo and Miyagawa of the Imperial University of Tokyo and the government institute for the study of infectious diseases, Drs. Miyajima and Hata of the Keio Medical College and the Kitasato Institute, Dr. Sato of St. Luke's International Hospital, and Drs. Kusama and Noheji of the sanitary bureau of the home ministry. They met in the home ministry several times beginning December 4, and on the 11th, Dr. Grand, who had come back from China, attended the meeting. General plans were made as follows: the expenditure for the school building, $5,000,000; the school term, two years; qualifications to enter the school, qualified physicians; obligations of the graduates, to go out into practical work in factories and schools; other establishments, to organize health centers in cities and villages. On the evening of the 12th, the Rockefeller Institution Alumni Association in Tokyo gave a dinner in honor of Dr. Grand, who was going again to China on the 14th.

Women's Pharmaceutic Colleges Licensed

Legal licenses have been given by the educational department to the Kyoritsu Women's Pharmaceutic College, which opened in April, 1930, the Tokyo Women's Pharmaceutic College, which opened in November, 1930, and the Showa Women's Pharmaceutic College, which opened in November, 1930.

Examination for Licensing Medical Practitioners

In the state examination held for the medical practitioners toward the end of last year (1930), the following four foreign physicians were licensed out of twenty-seven candidates for medical practice and twenty-eight for pharmaceutic: physicians and pharmaceutists, Dr. T. F. Rowy, United States, Dr. H. E. Boles, United States, and Dr. T. Schmidt, Germany; physician, Dr. Visua Naas, India. The examination, which used to be held in July and December, is now held once a year.

Fellows of the League of Nations

On the recommendation of Dr. Tsurumi, the Health Section of the League of Nations has granted fellowships to three Japanese scholars. They left here at the end of 1930 to stay in Geneva for two or three years: Dr. Hamano chiefly will investigate the disposal of sewage and improvement in villages; Dr. Yaoi will pursue studies in bacteriology, and Dr. Abe in social hygiene.

Meetings of Societies

The Japan Racial Hygiene Society, which was long promoted chiefly by Dr. Nagai, professor of eugenics in the medical department of the Tokyo Imperial University, has been organized under the presidency of Viscount Toki. The opening ceremony was held in the Municipal Hall at Hibiya Park, November 30. After the addresses of the minister of home and education, lectures were given by Dr. Miyake and five other celebrated men of sciences.

The Tokyo Prefectural Sanitary Authorities gave lectures to school sanitarians in towns in the neighborhood of Tokyo, in December, on prevention of infectious diseases in schools and the nursing of school children. The Kumamoto Medical College also gave a course of lectures on school hygiene for four days, December 8-11; about 400 school masters, teachers and school nurses attended.

Personal Items

Dr. C. Yokote, professor of hygienics in the Tokyo Imperial University, has retired, having reached the age limit. Dr. Mochizuki died at the age of 72, November 29. He was formerly principal of the Kyoto Medical College. Dr. Inoue, professor of anatomy to the Tokyo Imperial University, who left May 1 last year to attend the hundred and twenty-fifth anniversary of the Kasa University, Kasan, Russia, returned to Tokyo, October 3. He is reported to have been treated as a guest of the nation in Russia and had the honor to make an address before the students of the university and the citizens at the reception, May 15. On the day of the celebration he delivered a lecture on "Development of the Palate." After that he went to Amsterdam to attend the third International Anatomy Meeting, August 4, as delegate from Japan.

NETHERLANDS

(From Our Regular Correspondent)

Jan. 21, 1931.

Government Health Insurance

The law pertaining to sickness, as revised under date of June 14, 1929, provides for the granting of cash benefits in case of sickness and constitutes a form of compulsory insurance. A person insured under this law is entitled, in case of sickness, to sick benefits, which may not exceed 8 florins ($3.20) a day. However, an insured person has no claim to sick benefits if (1) the sickness is the result of an accident covered by the law pertaining to accidents, or (2) the sickness is the result of intention, a misdemeanor or immorality. Married women during pregnancy and confinement are regarded as patients. The law does not define the term "sickness" but considers that sickness obtains if a person is unable to work and requires medical treatment.

In Memory of Prof. Dr. Christiaan Eijkman

Prof. Dr. Christiaan Eijkman, Nobel prize winner in physiology and medicine, passed away at Amsterdam, November 5. He was appointed health officer following the publication of his treatise on "Polarization in the Nerves," and soon afterward undertook his first voyage to the East Indies. On a second voyage, he was a member of the commission on beriberi, which was under the direction of Pekelharing and Winkler. On his return from that voyage, he was appointed professor of hygiene, medical police control and legal medicine at the University of Utrecht. In his articles he dealt with a great number of subjects pertaining to colonial medicine. He pointed out that, in the East Indies, Europeans do not suffer from anemia; their temperature is not increased, and their nutritive and physiologic exchanges are the same as here in Europe and do not differ in any respect from the manifestations in the natives. It is superfluous to do more than mention the enormous influence of his work on beriberi: to him belongs the honor of having created the science of vitamins. Aside from his eminence in physiology, Professor Eijkman showed himself to be a no less remarkable bacteriologist: to cite his researches on the functions of bacteria, and on the conditions of growth and death of ferments, which interested him more than the study of pathogenic bacteria.

Malaria in the Netherlands

The report of the malaria commission of the council of health for the years 1927-1928, notes that the work of the commission has shed light on the autumnal infections that are highly latent. The investigations of Swellengrebel, during the period 1920-1923, on the natural infection of *Anopheles*, established that it is encountered in autumn in *Anopheles* found in houses. This had the effect of giving different directions to the crusade against malaria by substituting for the destruction of *Anopheles* the destruction of the mosquitoes in the houses, especially during the autumn season.

Dr. P. C. Korteweg studied the frequency of recurrences the following year in persons who were infected with malaria before, and also in those who were infected after, September 1. Of 1,108 persons infected before September 1, there was 12.8 per cent of recurrences during the following year. In 170 who were infected after September 1, there was 40.6 per cent of recurrences. Experiments were made with marked mosquitoes, which reveal that *Anopheles* may be recovered 3,000 meters from the point where they were released.

According to the researches of Van Thiel, Van Swellengrebel and De Buck, it seems likely that two species must be incriminated that can be distinguished only by the length of their wings. The two species may become infected with malaria, but it may be noted that it is *Anopheles* with short wings that produces the infection of the autumn season, and since the autumnal infections prepare the way for the worst infections of the following spring, the problem of anophelism without malaria is partly explained. As to *Anopheles* with short wings, the brackish water appears to attract them more than the other species.

Increase in Height of Hollanders

In the review *Mensch en Maatschappij*, Prof. J. P. Van den Broek publishes an article concerning the increase in the height of Hollanders. He concludes from his study of statistics that: 1. The average height of man in the Netherlands is 1.72 meters. 2. After Sweden, Norway and Scotland, the height of man in the Netherlands is the greatest of any country. 3. The average height is greatest in Friesland, Groningen and northern Netherlands, and the least in Limburg and North Brabant. 4. The increase in height is a world-wide phenomenon. It is sometimes said that the increase is due to the greater wealth and comfort that have resulted from the absence of alcoholism, but to this assumption certain objections may be raised: This increase in growth has been going on for sixty years; the increase in all parts of the Netherlands is uniform, and the same increase is noted outside the Netherlands.

Honorary Degrees Conferred

Prof. V. Zeeman has been awarded the degree of doctor honoris causa by the Faculté des sciences of the University of Paris, and Prof. H. Zwaardemaker has received the same honorary title from the Faculté de médecine of the same institution. The doctorate honoris causa of the Sorbonne was conferred at this time on five scientists—one for each of the five faculties. That two of the five awards should have fallen to the Netherlands is a source of gratification. France is a country of broad general views, of clear thinking and precise forms. For that reason, a distinction of this kind has a peculiar significance.

Blood Transfusion Service Organized

A blood transfusion service has been organized at Rotterdam by the Red Cross. Any physician may send in an urgent request for a blood donor. The creation of the service has been widely advertised in order that it may be of aid when one searches in vain for a suitable donor among the members of the family, the friends and the acquaintances of the patient.

Marriages

MORTIMER BYRON DOWNER, JR., Woodstock, N. Y., to Miss Carol Sophia Hallstrom of Flushing, January 24.

WILLIAM JAMES FAGALY, Lawrenceburg, Ind., to Miss Dorothy Rae Wheeler in East Warsaw, January 15.

WILLIAMSON ZIEGLER BRADFORD to Miss Mary Coley Spier, both of Charlotte, N. C., January 6.

ROBERT M. WARE to Miss Sarah Pollard, both of Fitzgerald, Ga., in Lake City, Fla., January 6.

BERT M. BREWSTER, Fieldon, Ill., to Mrs. Beatrice Johnson in St. Louis, January 16.

Deaths

Edward Eliot Harris ✠ New York; Medical Department of the University of the City of New York, 1880; member of the House of Delegates of the American Medical Association, 1902-1906, 1917-1927; for many years speaker of the house of delegates of the Medical Society of the State of New York; professor of physiology and hygiene in Rutgers College, 1881-1885, assistant to the chair of physiology and histology, 1881-1883, instructor in the laboratory of biology and pathology, 1882-1884, at his alma mater; inspector for contagious diseases, New York Board of Health, 1882-1886; on the staff of the New York Children's Hospital, Randall's Island; aged 74; died, February 25.

Ernest Cattron Wheeler ✠ Tacoma, Wash.; Chicago Homeopathic Medical College, 1897; Rush Medical College, Chicago, 1899; member of the American Academy of Ophthalmology and Oto-Laryngology and the Pacific Coast Oto-Ophthalmological Society; served during the World War; aged 58; died, January 21, in the Tacoma General Hospital, of paralytic ileus, following an operation for obstruction of the small intestine.

Samuel T. Earle, Jr. ✠ Baltimore; University of Maryland School of Medicine, Baltimore, 1870; formerly professor of physiology and diseases of the rectum, Baltimore Medical College; member of the American College of Surgeons; past president of the American Proctologic Society and the Medical and Chirurgical Faculty of Maryland; aged 82; died suddenly, February 19, in the Union Memorial Hospital, of angina pectoris.

Tinsley Brown ✠ Hamilton, Mo.; Missouri Medical College, St. Louis, 1876; past president of the Missouri State Medical Association; secretary and formerly mayor of Hamilton, postmaster and member of the school board; past president of the Caldwell County Medical Society; aged 81; died, February 9, of cerebral hemorrhage.

Frederick Albert Bardwell, Oteen, N. C.; New York Homeopathic Medical College and Hospital, 1893; Harvard University Medical School, Boston, 1901; member of the Massachusetts Medical Society; on the staff of the U. S. Veterans' Hospital, number 60; aged 66; died, February 15, of coronary thrombosis.

Guy Harrison McFall, Detroit; Detroit College of Medicine, 1899; assistant professor of rhinology, laryngology and otology, at his alma mater; on the staffs of the Herman Kiefer Hospital and the Children's Free Hospital; aged 54; died, February 20, in the Jennings Hospital, of pneumonia.

George W. Brose, York, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1891; member of the Medical Society of the State of Pennsylvania; on the staff of the Danville (Pa.) State Hospital; aged 68; died, February 6, of hypertrophy of the prostate and chronic nephritis.

Frederick Charles Keck, San Francisco; Cooper Medical College, San Francisco, 1894; member of the California Medical Association; formerly professor of electrotherapeutics, College of Physicians and Surgeons of San Francisco; aged 66; died, February 16, of pneumonia.

Frank Raymond Stubbs ✠ Newton, Mass.; Harvard University Medical School, Boston, 1897; formerly instructor of histology at his alma mater; aged 59; on the staff of the Newton Hospital, where he died, February 9, of cardiac decompensation and pulmonary edema.

Charles Edward Abbott, Andover, Mass.; Harvard University Medical School, Boston, 1881; member of the Massachusetts Medical Society; formerly member of the state legislature; aged 74; died, January 25, of arteriosclerosis and cerebral hemorrhage.

John Vance Lauderdale ✠ Major, U. S. Army, retired, Brooklyn; Medical Department of the University of the City of New York, 1862; entered the Army as an assistant surgeon in 1867, and retired in 1896 for physical disability; aged 98; died, January 22.

Harold Alexander Patterson, New York; University of Buffalo School of Medicine, 1917; member of the American College of Physicians; on the staff of the Manhattan State Hospital, Ward's Island; aged 36; died, February 17, of cerebral hemorrhage.

Charles Sewell Barrell, Boston; Harvard University Medical School, 1900; member of the Massachusetts Medical Society; aged 63; died, February 16, in the Massachusetts General Hospital, of cerebral hemorrhage, arteriosclerosis and myocarditis.

William Alexander Brittin, Virden, Ill.; Marion-Sims College of Medicine, St. Louis, 1895; member of the Illinois State Medical Society; aged 64; died, February 11, in St. John's Hospital, Springfield, following gangrene and amputation of his leg.

Howard A. Hanaford ✠ Newport, N. H.; Baltimore Medical College, 1900; past president of the Sullivan County Medical Society; on the staff of the Carrie F. Wright Memorial Hospital; aged 55; died, February 9, of meningitis, following influenza.

Henry Aliston Killion, Portageville, Mo.; University of the South Medical Department, Sewanee, Tenn., 1901; Barnes Medical College, St. Louis, 1904; University of Nashville Medical Department, 1904; formerly mayor; aged 49; died, in February.

Ralph Robert Charlesworth, Wildwood, N. J.; Jefferson Medical College of Philadelphia, 1904; served during the World War; on the staff of the Millville (N. J.) Hospital; aged 50; died, February 12, in the Jefferson Hospital, of cirrhosis of the liver.

Duncan Williamson Blake, Sr., Gloucester City, N. J.; Jefferson Medical College of Philadelphia, 1876; Civil War veteran; formerly coroner, president of the board of health and member of the board of education; aged 82; died, January 28.

William S. Glenn, Sr., State College, Pa.; Eclectic Medical Institute, Cincinnati, 1883; for many years a member of the school board; aged 72; died in January, in the Jefferson Hospital, Philadelphia, of chronic nephritis and cerebral hemorrhage.

Robert Eugene Barker, Kansas City, Kan.; Kansas City Medical College, 1900; member of the Kansas Medical Society; aged 56; died, February 17, in the Bethany Hospital, of acute dilatation of the heart following an operation for gallstones.

Charles Henry Schenk, Lagrange, Ind.; Curtis Physio-Medical Institute, Marion, 1894; member of the Indiana State Medical Association; served during the World War; aged 60; died, February 5, of carcinoma of the stomach.

Edwin M. Hollingsworth, Mount Airy, N. C.; College of Physicians and Surgeons, Baltimore, 1886; member of the Medical Society of the State of North Carolina; aged 65; died, February 10, of a self-inflicted bullet wound.

Edwin Whittier York ✠ Newark, N. Y.; University and Bellevue Hospital Medical College, 1917; proprietor of the Newark Hospital; aged 37; died, February 13, of cerebral hemorrhage, nephritis and hypertension.

Lemuel Arthur Bassett, Boone, Iowa; Rush Medical College, Chicago, 1896; member of the Iowa State Medical Society; on the staff of the Eleanor Moore Hospital; aged 63; died, February 7, of angina pectoris.

Inez Ford Nason, Dover, N. H.; Woman's Medical College of Pennsylvania, Philadelphia, 1890; member of the New Hampshire Medical Society; aged 66; died, January 15, in Bradford, Vt., of heart disease.

John Valentine Fisher, Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1886; member of the Medical Society of the State of Pennsylvania; aged 78; died, February 13, of heart disease.

William Granville Sykes, Aberdeen, Miss.; Medical Department of the University of the City of New York, 1870; Confederate veteran; formerly member of the state legislature; aged 85; died, January 18.

Hugh Angus Macaulay ✠ Waynesboro, Ga.; University of Louisville (Ky.) School of Medicine, 1908; past president and secretary of the Burke County Medical Society; aged 45; died, February 4, of pneumonia.

John Donovan Weibel, Pittsburgh; Vanderbilt University School of Medicine, Nashville, Tenn., 1930; aged 26; intern at the Mercy Hospital, where he died, February 17, following an operation for appendicitis.

Archibald J. McKillop, Wolverine, Mich.; Medical Department of the University of Wooster, Cleveland, 1887; member of the Michigan State Medical Society; aged 67; died, February 4, of heart disease.

Robert Edward Webster, Maitland, Ont., Canada; McGill University Faculty of Medicine, Montreal, Que., 1891; member of the American College of Surgeons; aged 60; died, February 9, in San Diego, Calif.

Louise Forbes Ferro, San Bernardino, Calif. (licensed by the Minnesota State Board of Medical Examiners, year unknown); aged 87; died, February 2, of myocarditis and arteriosclerosis.

Pearl Mary Foster Bigelow, Utica, N. Y.; Syracuse University College of Medicine, 1903; aged 52; died, Dec. 27, 1930, in the Utica State Hospital, of cerebral arteriosclerosis and chronic nephritis.

Edwin A. Mendell, St. Joseph, Mo.; Cotner University Medical Department, Lincoln, Neb., 1892; member of the Missouri State Medical Association; aged 69; died, January 14, of carcinoma.

Jefferson Cawood Newman, National Soldiers Home, Va.; Tennessee Medical College, Knoxville, 1892; on the staff of the National Soldiers' Home; aged 59; died, February 8, of heart disease.

Angelo Audi, Union City, N. J.; Royal University of Turin Faculty of Medicine and Surgery, Turin, Italy, 1903; aged 52; died, January 25, of carcinoma of the rectum and cerebral hemorrhage.

Charles Bartels, New York; Medical Department of Columbia College, New York, 1888; member of the Medical Society of the State of New York; died, January 7, of chronic myocarditis.

William C. Dewberry, Pensacola, Fla.; Medical College of Alabama, Mobile, 1891; member of the Florida Medical Association; also a druggist; aged 64; died, January 25, of pneumonia.

James Clark McGuire, Washington, D. C.; Medical Department of Columbian University, Washington, D. C., 1879; aged 78; died, January 21, of coronary thrombosis and arteriosclerosis.

Herbert Daniel Burnham ✠ New York; Medical Department of the University of the City of New York, 1889; aged 72; died, February 3, of chronic nephritis, uremia and endocarditis.

Maurice Barret Pearlstien ✠ Brooklyn; Eclectic Medical College of the City of New York, 1899; on the staff of the Unity Hospital; aged 54; died, January 11, of angina pectoris.

W. F. McCurdy, Weston, Ga.; Atlanta Medical College, 1884; member of the Medical Association of Georgia; formerly mayor of Richland; aged 71; died, February 6, of pneumonia.

George Andrew King, Kansas City, Mo.; Rush Medical College, Chicago, 1904; aged 53; died, January 29, in the Wesley Hospital, of cirrhosis of the liver and myocarditis.

Andrew Allison O'Daniel, Wildwood, N. J.; Jefferson Medical College of Philadelphia, 1884; served during the World War; aged 67; died, January 25, of cerebral hemorrhage.

Edmund Scott Dow, Boston; Harvard University Medical School, Boston, 1887; member of the Massachusetts Medical Society; aged 69; died, February 6, of lobar pneumonia.

Walter Brooks Hughes, Newport, Ky.; Eclectic Medical Institute, Cincinnati, 1914; served during the World War; county coroner; aged 38; died, February 6, of influenza.

Lyman Austin Crim, Indianapolis; Indiana Medical College, Indianapolis, 1878; formerly a druggist; aged 78; died, February 5, of angina pectoris and chronic myocarditis.

Cora Turner Saxe ✠ Seattle; University of Michigan Medical School, Ann Arbor, 1886; aged 71; died, January 31, of chronic myocarditis following a cholecystectomy.

Louis W. Palmer, Pentwater, Mich.; Kentucky School of Medicine, Louisville, 1877; veteran of the Spanish-American War; aged 73; died, February 8, of heart disease.

George L. Fox, Linden, Md.; Medical Department of Columbian University, Washington, D. C., 1885; aged 74; died, January 14, of pyelonephritis, uremia and cystitis.

James Curtis Watts ✠ Rome, Ga.; Eclectic Medical Institute, Cincinnati, 1881; on the staff of the McCall Hospital; aged 70; died, February 3, of coronary thrombosis.

Thomas Alphonsus Wallace, New York; Medical Department of the University of the City of New York, 1893; aged 65; died, Nov. 10, 1930, of chronic myocarditis.

Joseph Moses Ward Kitchen, East Orange, N. J.; Medical Department of Columbia College, New York, 1881; aged 84; died, February 3, of hypostatic pneumonia.

John Stennis Adams, Sumrall, Miss.; University of Nashville Medical Department, 1901; aged 52; died, in February, in a hospital at Hattiesburg, of pneumonia.

Anna Belle Davis Parker, Gilmanton, N. H.; Boston University School of Medicine, 1898; aged 61; died, February 10, in Worcester, Mass., of heart disease.

George Sherman Blake, Rockville, Ind.; Bellevue Hospital Medical College, 1892; aged 66; died, January 30, in Tempe, Ariz., of ruptured gallbladder.

George C. Holland, Dallas, N. C.; Baltimore University School of Medicine, 1890; formerly mayor of Bluefield, W. Va.; aged 66; died, February 4, of uremia.

William C. McNeal, Hoehne, Colo.; Jefferson School of Medicine, Louisville, 1882; aged 76; died, January 12, in a hospital at Trinidad, of pneumonia.

Thomas Baird Allison, Tarentum, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1896; aged 69; died, Dec. 11, 1930, of acute myocarditis.

John H. Young, Burkeville, Va.; Southern Medical College, Atlanta, 1882; member of the Medical Society of Virginia; aged 71; died, Dec. 22, 1930.

Carl Orth, St. Louis; St. Louis College of Physicians and Surgeons, 1891; aged 67; died, February 15, in the Deaconess Hospital, of pneumonia.

Samuel Joseph Chesnut, Bainbridge, Ga.; University of Maryland School of Medicine, Baltimore, 1892; aged 68; died, February 10, of uremia.

B. F. Hancock, Nashville, Ark.; Medical Department, University of Tennessee, 1881; aged 76; was found dead, January 20, of heart disease.

Marcus M. Rhoades, Graham, Mo.; St. Louis Medical College, 1868; Civil War veteran; aged 90; died, January 16, of arteriosclerosis.

George Lewis Guthrie, Madison, Ind.; Medical College of Indiana, Indianapolis, 1900; aged 53; died, February 12, of heart disease.

Charles Lorain Harrod, Indianapolis; Medical Department, University of Tennessee, 1893; aged 67; died, January 23, of heart disease.

John James Irven, Montreal, Que., Canada; McGill University Faculty of Medicine, Montreal, 1911; aged 43; died, Dec. 6, 1930.

C. B. Baird, Sharon, Tenn.; Vanderbilt University School of Medicine, Nashville, 1886; aged 66; died, January 24, of pneumonia.

William J. Bryan, Valhalla, N. Y.; Eclectic Medical College of the City of New York, 1879; aged 72; died, February 9, of senility.

Sophia C. Davis, Augusta, Ga.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1894; aged 80; died, January 16, of senility.

Nicholas I. Scott, Norwood, Ohio; Medical College of Ohio, Cincinnati, 1881; aged 79; died, February 12, of diabetes mellitus.

Oliver P. Branson, Wichita, Kan.; American Medical College, St. Louis, 1895; aged 76; died, February 5, of heart disease.

William A. Ewing, Washington, Okla.; University of Louisville (Ky.) School of Medicine, 1893; aged 68; died, Dec. 12, 1930.

John James Carroll ✠ Naugatuck, Conn.; Dartmouth Medical School, Hanover, N. H., 1897; aged 72; died, Dec. 17, 1930.

Robert X. Wade, Coyle, Okla. (licensed, Oklahoma, under the Act of 1908); aged 75; died, Dec. 29, 1930, of lobar pneumonia.

Edward John Free, Campbellford, Ont., Canada; Victoria University Medical Department, 1887; aged 71; died, Nov. 16, 1930.

Daniel B. Taylor, Gary, Ind.; Meharry Medical College, Nashville, Tenn., 1903; aged 51; died, January 27, of pneumonia.

Ammi Sibley Nichols, Portland, Ore.; Hahnemann Medical College of Philadelphia, 1876; aged 77; died, January 23.

William N. Tate, Mebane, N. C.; Louisville (Ky.) Medical College, 1875; aged 85; died, January 26, of arthritis.

Thomas A. Cook, Democrat, Ky.; Louisville Medical College, 1893; aged 65; died, January 30, of appendicitis.

Jay C. Norris, Birmingham, Iowa (licensed, Iowa, 1887); aged 75; died, February 7.

Bureau of Investigation

SCAR-POX

An Alleged Cure for Smallpox and Scarlet Fever

State and local health officials from Michigan to California have received a form-letter coming from the "White Laboratories" of Chicago, offering to send, on request, a free trial treatment of "Scar-Pox." Among the claims made for Scar-Pox in the letter just referred to are these:

"Scar-Pox, the new and guaranteed remedy for scarlet fever or smallpox."

"Scar-Pox is the tested remedy for the cure of either dread disease, scarlet fever or smallpox."

"It is a vegetable compound, absolutely pure."

"It is guaranteed by the makers to absolutely cure either scarlet fever or smallpox in three days when used as directed."

The White Laboratories, according to the letterhead, are "Manufacturing Chemists" and are the "Sole Makers of Scar-Pox." The letters sent out by the White Laboratories are signed "J. White." The address given is 309 South LaSalle Street, Chicago. The Chicago telephone directory does not contain the name of these manufacturing chemists—the White Laboratories. A visit to 309 South LaSalle Street also disclosed the fact that the White Laboratories are not listed in the office directory of that building. Neither did the men who operated the elevators of the building know where the White Laboratories could be found. A visit was made, however, to a large, and not too prepossessing office in this building, housing, according to the names on the door, the "All Trades Employment Bureau" and the "Chicago Garage Owners Exchange." Inquiry for the persons who represented the "White Laboratories" brought out from one of the partitioned departments, Mr. White.

The representative of the Bureau of Investigation told Mr. White that a number of inquiries were being received regarding his product, Scar-Pox, and Mr. White was asked whether he was willing to give any information regarding his product, so that such questions might, in the future, be answered more satisfactorily. Mr. White was not willing. He did make some vague statements to the effect that Scar-Pox was a preparation that had been originated by a German. When asked whether the product had ever been tested in the United States, Mr. White said that it had, on three cases in California and one case in Chicago—in both instances, apparently, under lay rather than medical auspices. On the matter of composition, Mr. White was as noninformative as the average "patent medicine" label. When asked where the White Laboratories were located, Mr. White stated that they were at his home.

The circular letter already referred to offered to send to any health department or board of health one "regular pint size" of Scar-Pox for a test. Accompanying the circular-letter was a return postcard. Those health officials who filled out the return card received, in due time, a pint bottle of Scar-Pox. The label on the bottle carried, in addition to directions, the following "Notice":

"Scar-Pox is an internal medicine, and is to be used internally only. It is not a toxin or a preventative and should be used only when either disease, scarlet fever or small pox is actually contracted. It contains no narcotics of any kind, alcohol or injurious drugs. SHAKE WELL BEFORE USING."

The patient with smallpox was directed, by the label, to drink half a glassful twice daily "till relieved." According to the same label, one bottle of Scar-Pox was sufficient for most cases. The directions further stated that if the smallpox sufferer was unconscious or helpless, "forced drinking is advisable." The only other information of interest on the label was the statement that this bottle of Scar-Pox was sold at $15!

In addition to the bottle of Scar-Pox that the health officials received, there came a follow-up letter, to the effect that should the official desire to reorder, shipments would be made the same day as the order was received and that the prices would be $15 a pint, or $150 for a case of twelve pints! A pint bottle would be sent by air mail for $3.75 additional to any part of the United States.

Some unopened, original bottles of Scar-Pox were submitted by the Bureau of Investigation to the A. M. A. Chemical Laboratory for analysis. The chemists' report follows:

LABORATORY REPORT

"Some original bottles of 'Scar-Pox' (White Laboratories, Manufacturing Chemists, 309 South LaSalle Street, Chicago, U. S. A.) were submitted to the A. M. A. Chemical Laboratory by the Bureau of Investigation for examination. The bottles contained an average of 450 cc. (approximately 15 fluid ounces) each of a colorless liquid with some suspended material, having a slightly 'stale' odor and an acidulous taste. The reaction of the mixture to litmus was decidedly acid. No statement as to the composition was given on the label.

"Qualitative tests indicated the presence of potassium, tartrate, traces of chloride and sulphate, water, a substance precipitable by alcohol, suggestive of potassium acid tartrate (more commonly known as cream of tartar). Heavy metals and alkaloids were not found.

"The specific gravity at 20 C. was 1.002. The total solids were found to be 0.67 per cent, consisting essentially of small, colorless, rhombic crystals (responding to tests for potassium acid tartrate). This amount of potassium acid tartrate was also indicated by titration. The amount of water by difference was found to be 99.33 per cent.

"From the foregoing tests, it is concluded that Scar-Pox is essentially a saturated aqueous solution of commercial cream of tartar (about 0.6 Gm. in 100 cc.)."

Summed up, then, it is evident that this "new and guaranteed remedy for scarlet fever or smallpox" that is "guaranteed by the makers to absolutely cure either scarlet fever or smallpox in three days" is nothing more than cream of tartar in water. Less than one-half cent's worth of cream of tartar in a short pint of water, selling for $15! One of the most astounding features of modern civilization is the fact, verified daily, that any person, however ignorant of medicine or pharmacy, can put up the most fantastically worthless mixtures and sell them as "cures" for some of the most serious diseases known, and there is no legal machinery for stopping it—unless the exploiter is so crude as to violate either the national Food and Drugs Act or the postal laws against fraud! In the present instance, J. White is sufficiently ignorant so that he apparently would violate both the postal laws and the national Food and Drugs Act. This does not, however, change the fact that, with a little more finesse, he could pursue this barbaric trade with impunity!

QUACKERY IN PENNSYLVANIA

Showing What One Newspaper Did to Protect the Public Against Charlatans

Last July, the Philadelphia *Record* started to look into the problem of medical quackery and published a most interesting and enlightening series under the general title, "Bootlegging the Healing Arts." The *Record* called for no help from the medical profession, either locally or nationally. The Bureau of Investigation, although it has a vast amount of data, some of which, of course, is on Philadelphia quacks, was not asked to furnish a line of information. Nevertheless, because the Philadelphia *Record* went after quacks aggressively, that paper was immediately accused of being but the cat's-paw of the American Medical Association—"the Medical Trust!"

What the Philadelphia *Record* accomplished with the help of the local law-enforcing bodies, is succinctly told in an editorial published by that paper January 30, last, under the title, "Quackery Can Be Suppressed." The editorial follows:

"Thirty-seven cases: thirty-five convictions, one postponement, one discharge on 'benefit of the doubt'—the unprecedented record made in the quackery prosecutions.

"Three jury verdicts of guilty, thirty-two pleas of 'no defense.'

"These are the results of evidence gathered by the *Record* and presented with masterly effect by Assistant District Attorney Hermes, under the impartial, learned supervision of Judge Ferguson.

"No undertaking initiated in such a manner was ever carried through with more impressive accomplishments. It received

compliments from three sources—in congratulations from the prosecutor and the Court, and in a defense attorney's plea to a jury:

"'The *Record* didn't do this to correct an abuse, but to sell papers, to gain circulation. Its idea was that the more doctors it could send to jail, the more dividends it could pay.'

"Those slurs, afterward withdrawn, justify a frank statement.

"First, the *Record* was not so unsophisticated as to expect that a crusade of this nature would add to its circulation, and in fact the project resulted in no gain of that nature.

"On the contrary, the *Record* foresaw that exposure of the quacks would offend many practitioners and a multitude of their followers. And, in fact, the publicity made more enemies than friends for the publication.

"The truth is exactly as stated by Mr. Hermes: 'The *Record* discovered systematic violation of State laws, and employed investigators at its own expense to get evidence that would end the abuses.'

"Incidentally, complaints of 'persecution' by 'the medical trust' are as baseless as the others. The medical profession studiously remained aloof, doubtless from fear of being accused of a desire to suppress 'competition.'

"All these, however, are now minor considerations. It is of real importance that the blow given to quackery should lead to better protection of the public health in the future.

"Eventually measures should be taken to revise the whole system of licensing practitioners of the various methods of treating disease. But meanwhile there is urgent need for real enforcement of existing law.

"That it is now virtually suspended, that a newspaper had to drag flagrant violators to Court, is due to lack of funds by the State Medical Board.

"It is the duty of the medical profession to insist that the Legislature make adequate appropriations for this purpose, and that the responsible agency rid the State, as it can, of unlicensed frauds and incompetents masquerading as doctors."

Correspondence

COLLECTION AND FINANCE COMPANIES

To the Editor:—In view of the number of letters printed in THE JOURNAL, February 14, making complaints against certain collection and finance companies, it would appear that the problem is perennial.

Several years ago, members of the Academy of Medicine of Cleveland were pestered with solicitations from a large number of collection agencies. After taking counsel, we wrote our members asking them to list with us the names and addresses of the companies with whom they had placed accounts in the few years preceding. We also asked for some comment as to the efficiency of the companies mentioned. The result was astonishing. The number of companies or individuals was four or five times larger than either the Academy or the Better Business Bureau of Cleveland realized.

We then wrote to all these companies informing them that we were continually receiving requests for information from our members about them and their services and asking that they file with us copies of their contracts and a statement of their methods of operation, together with names of some physicians with whom they had had satisfactory dealings. We explained that with facts on hand we could intelligently answer queries; without facts we would have to inform our members that there was no local information available about the company.

As a result, companies who had a local reputation of merit promptly furnished us with the material requested; those who apparently had something to conceal refused to comply with our request. We then wrote to all our members, instructing them to call us every time a new solicitor appeared, concerning whom they had no information or personal knowledge.

The result succeeded beyond our expectations. So far as we know, Cleveland has since been relatively free from the fly-by-night agencies. While many have attempted to open here, they have not remained long, nor have they obtained many accounts.

We have repeatedly pointed out to our members certain methods of avoiding collection difficulties as follows:

1. Accurate bookkeeping and regular billing by the physician.
2. Where collection is necessary:
   (*a*) Employment of an individual personally known to the physician.
   (*b*) Employment of a local collection agency whose reputation has been established by service covering several years.
   (*c*) Affiliation with retail credit companies or similar organizations operated by local merchants and professional men.
   (*d*) Prompt communication with our executive office whenever a solicitor of an unknown company makes a bid for accounts.

This campaign (which is really not a campaign, but a continuous service) has been made possible and effective by cooperation with the executive office of the American Medical Association, in checking the national standing of unknown firms; and by the cordial help and support of the local Better Business Bureau, which has made many investigations for us.

H. VAN Y. CALDWELL, Cleveland.
Executive Secretary, Academy of Medicine of Cleveland.

BLOOD CHEMISTRY VALUES

To the Editor:—I am submitting a table of blood chemistry values which I have found practical and easy to remember:

Total nonprotein nitrogen	30–40
Urea nitrogen	10–20
Uric acid	3–4
Creatinine	1–2

All values in milligrams per hundred cubic centimeters of blood.

If the figures are read from the bottom up they are: 1, 2, 3, 4; 10, 20, 30, 40. One needs only to bear in mind that the upper figures are high normals and even the slightest increase above the upper figure indicates pathologic change.

This was first suggested to me by some one in my graduating class (University of Colorado, 1927).

This may be of value to those who cannot recall blood chemistry normals at random. JULIAN LOVE, Brooklyn.
Lieutenant (j. g.), M. C., U. S. Navy.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

PATHOLOGY IN DEATHS FROM ETHYL ALCOHOL, METHYL ALCOHOL AND CANTHARIDES

To the Editor:—What does postmortem examination reveal in cases of death due to ethyl alcohol, methyl alcohol or cantharides? What is the fatal amount of ethyl alcohol in a normal individual, if there is a fatal dose? Would you please recommend a textbook on pharmacology and toxicology that is concise? JAMES B. BURCHAM, M.D., Gary, Ind.

ANSWER.—After death from acute poisoning with either ethyl or methyl alcohol, the usual changes are congestion of the lining of the stomach and duodenum, with many small hemorrhagic extravasations, congestion and edema of the brain and its membranes and also of the lungs. In neither case are there any distinctively characteristic changes. After death from acute alcoholism the odor of alcohol may be detected from the contents of the stomach and the brain.

After fatal poisoning by cantharides there will be found acute gastritis and enteritis as well as nephritis with perhaps acute inflammation in the lower part of the urinary tract; there may be blisters in the mouth and stomach; if the powdered cantharides has been taken there may be present in the stomach characteristic green, shining particles.

The fatal dose of ethyl alcohol will vary depending on individual susceptibility, concentration of the alcohol taken, the

previous contents of the stomach, and so on. Consequently, no single quantity has been established as the average fatal dose. In most of the fatal cases, from 1 to 2 pints of whisky or brandy was reported as taken, which would correspond to from about 230 to 475 cc. of pure alcohol. In many cases a smaller quantity no doubt would be fatal. From 100 to 200 cc. of pure grain alcohol may be regarded as the minimal fatal dose if taken at one time in concentrated form. Infants have died from two tablespoonfuls of brandy, and from 30 to, say, 120 cc. of absolute alcohol may be regarded as probably fatal to most children under 12 years of age, but Herter (*New York M. J.* **64**:608, 1896) has reported an instance in which a child of 3½ years recovered after taking 12 ounces of whisky; that is, approximately 355 cc. of alcohol.

Cushny's Text-Book of Pharmacology and Therapeutics, revised by Edmunds and Gunn, now in its ninth edition, and Sollmann's Manual of Pharmacology and Its Application to Therapeutics and Toxicology, third edition, are standard textbooks in their fields.

EXAMINATION OF VAGINAL SMEARS FOR TRICHOMONAS

To the Editor:—Will you kindly give the method of examination of fresh smears for *Trichomonas vaginalis?* Please omit name.

M.D., Michigan.

ANSWER.—The word smear generally refers to a preparation that is stained and then examined for organisms. This is not the method for studying *Trichomonas vaginalis*, especially for one who is not thoroughly familiar with these parasites. The way to detect *Trichomonas vaginalis* is by the simplest form of microscopic examination; namely, an examination of a drop of the fresh secretion obtained from the vagina. The drop of secretion may be obtained with a platinum loop from the vault of the vagina after exposure with a speculum. A more simple method is to make a vaginal examination; on withdrawal, a moderate amount of secretion will be found adherent to the gloved fingers. For making slides, the discharge that is high up in the vault and close to the vaginal wall should be used, and not the discharge that is on the surface. One or more drops may easily be placed on cover slips or slides. If this method is used and the glove is dry when drawn on, the dusting powder should be washed off with soap and water before the vaginal examination is made. No antiseptic or lubricant should be used on the glove. For studying the organism, fields should be selected where there is relatively little discharge; namely, at the periphery of the drop of secretion. The drop usually consists of a large number of leukocytes and bacteria, many epithelial cells and many trichomonads. For the beginner it is best to add a drop of salt solution to the drop of secretion and then make the examination. With the ordinary high power lenses, the parasites may be readily seen because of their motility. The trichomonads vary considerably in size. Usually, however, they are larger than a polymorphonuclear leukocyte but smaller than an epithelial cell. The organism varies in shape but usually it is spindle shaped or pyriform.

HAZARDS TO WORKERS IN STORAGE BATTERY INDUSTRY

To the Editor:—F. C., a man, aged 20, working in a factory in the manufacture of storage batteries, has no direct contact with lead. His job is in the "acid room," where the lead plates are immersed in sulphuric acid, connected in series, and charged with an electric current for forty-eight hours. He complains that his teeth are becoming yellow and that he cannot keep them white. The central incisors, in spite of dental care, show decay of the enamel. In addition, there have been vague gastro-intestinal symptoms for a month, especially attacks of dull epigastric pain, globus and local distention, which wake him out of his sleep several times a night and for which he asks relief. Is there such a thing as sulphuric acid poisoning? The room, although large, is permeated with its fumes. Kindly omit name.

M.D., Connecticut.

ANSWER.—There is no inherent lead hazard in the acid room of a storage battery factory. Cases have been observed in such work, but invariably these may be traced to unusual circumstances, such as currents of air bearing lead dusts sweeping in from other rooms.

Sulphuric acid as used in this industry does not evaporate. As the result of mechanical action of thousands of minute bubbles created in the battery as a result of chemical action, some sulphuric acid is thrown out into the air and may be respired. Workers exposed to this nebulized sulphuric acid frequently complain of damaged teeth and gastro-intestinal disorders. There is no reason to believe that sulphuric acid, as such, long exists after contact with the body; nevertheless, the number of cases detectable under exposure of this sort justifies the recognition of some deleterious influences. McCord and Friedlander (*Am. J. Pub. Health* **16**:274 [March] 1926) have reported a series of gastro-intestinal ulcerations or severe inflammations among galvanizers. In this industry the nebulized sulphuric acid, combined with vapors of zinc oxide from the galvanizing kettle, forms zinc sulphate. This acid-like substance was accepted as responsible for the gastro-intestinal disturbances encountered.

If in the present instance lead exposure may be ruled out and if acid actually is present, it is reasonable to consider as probable some influence, direct or indirect, from the acid on the mouth and gastro-intestinal tissues.

OPERATION OF CHOICE FOR SEXUAL STERILIZATION IN THE FEMALE

To the Editor:—What, at this time, is considered the best operation for sexual sterilization in the female as shown by reported failures? Is the Madlener operation considered entirely satisfactory? We have been doing double crushing and ligating of the tube and have had no reported failures. In other institutions of this state they have preferred resection at the cornu of the uterus.

H. C. HENRY, M.D., Petersburg, Va.

ANSWER.—Madlener (*Zentralbl. f. Gynäk.* **50**:219, 1926) reported 128 cases in which he crushed and ligated the tubes according to his technic. The results were 100 per cent perfect; no pregnancy followed. Simple crushing and ligation of the tubes (Madlener angulates, crushes and ligates) cannot be depended on. Pregnancy follows occasionally despite most painstaking technic. The most satisfactory and most widely accepted technic consists in excision of a portion of the tube at the uterine cornu with careful burying of the tubal stump in the broad ligament and painstaking suturing and peritonization of the uterine wound. It is well to bear in mind that removal of the fundus of the uterus not only sterilizes with certainty but may also rid the patient of the danger of subsequent bleeding or discomfort from a heavy, dragging uterus.

HAZARDS OF SAND BLASTING

To the Editor:—A corporation that I serve has asked me to inform it regarding the accuracy of a statement made by Dr. W. A. Evans in his syndicated article published recently, entitled "Steel Grit Blasting." It states:

"The sand blasting industry is discovering that fine steel grit powder in many respects is superior to silica sand. Sand can be used only once in blasting, because the force breaks up the particles and smooths off the corners and makes the sand useless. Steel grit dust can be used over and over again.

"Sand is light and air currents carry it over everything. Steel grit is heavy, falls out of the air and does not soil the neighborhood. When sand is used for blasting the cloud of dust makes it difficult for the workers to see around them. Not so with the steel grit dust. And overshadowing the other advantage of steel grit is its greater safety for employees. The man who works at sand blasting is reasonably sure to develop silicosis, a form of lung disease which is quite similar to consumption, probably due to infection of tissues put in condition for infection by the dust.

"In New York State a married man, the father of four children, recently died from silicosis. He was a sand blaster and the disease was a result of his occupation. His case went up through various boards and finally through the courts and came to rest with the following sententious formula: 'Case closed. Cause of death, silicosis. No compensation.' Society may have to care for the family. When this man worked at his trade he always wore a hood and stayed in his dust cabinet. This cabinet, and also the hood, was attached to exhaust ducts through which fans drew away the dust laden air. It has been found that hoods of this type are useless or worse in sand blasting. The dust is so fine that it works into the hood in spite of all that can be done. The approved sand blaster's hood has air pumped into it. A positive air pressure is maintained inside of it. This is more effective in keeping out dust."

Have you any information which would assist me in determining the accuracy of the foregoing statement?

LYNN T. HALL, M.D., Omaha.

ANSWER.—The United States Public Health Service, in cooperation with the National Safety Council, has been conducting over a period of many months an investigation of the hazards of sand blasting. No general report has been made, although some information has been supplied to cooperating agencies. Until a full report is available, it is desirable that no fixed opinion of sand blasting and the relative merits of steel grit and sand be expressed.

At this time it is proper to maintain the following:

1. The use of steel grit to replace sand does not eliminate the dust hazard. The number of particles of dust in the atmosphere per unit of measurement, such as a foot or a yard of air, is much less when steel grit is employed. This is especially true when the blasting is applied to metal parts, castings, and the like. In the blasting of granite (or other

siliceous rock) buildings, the cut surface rather than the cutting agent provides a highly dangerous silica dust.

2. The lifetime of steel grit used in blasting is not so extended as implied in the quotation in the query. The sharp cutting edges of steel particles are dulled by use and require replacement. Special steels possess properties permitting longer use, but increased costs limit application.

3. Dust dispersion is greater for sand than for steel particles. This property is favorable to the use of steel grit.

4. Silicosis is prone to develop in any sand blaster long engaged in this work and unprotected by work conditions and appliances that obviate dusts. Silicosis is, however, not an infectious disease. Tuberculosis may be superimposed on a silicosis, but the latter state is an entity of chemical or mechanical (or both) origin.

5. Silicosis is acceptable for industrial compensation only in California, North Dakota, Wisconsin, Massachusetts and Connecticut. This statement is subject to recent changes. No effort has been made to check the specific case mentioned in the query, but cases of this character are known to exist. A grave social injustice is being done in the discrimination against silicosis as an occupational disease, in connection with compensation.

6. The usual type of mask or hood employed in the average dusty trade is of restricted value in sand blasting. Positive pressure breathing helmets are preferable.

A recent discussion of this occupation may be found in an article entitled "Ueber die Verwendung von Stahlkies in Sandstrahlgeblaesen," by G. H. Zirker, Giesserei (Düsseldorf), December, 1930, volume 17, number 50, pages 1189-1197. This article gives a comparison of natural products—quartz, sand, river sand—with technical products, such as steel sand. Photostatic copies of this foreign article may be obtained at a low cost by writing to the Engineering Society Library, 29 West Thirty-Ninth Street, New York.

METALLIC TASTE IN MOUTH

To the Editor:—A woman, aged 21, has complained of a metallic taste in her mouth with a slight tendency toward salivation for the past two years. She has always been healthy, especially during the past three or four years; during that period she has not received medication of any sort. She has never smoked, does not drink, eats a well balanced diet and leads a routine life. The metallic taste persists constantly, the only relief being the partial obscuring of the taste while eating. The taste is most noticeable along the gum margin. Examination shows a healthy girl and repeated examinations show absolutely no pathologic conditions. The mouth is clean, the gums are healthy. There are a few gold fillings, which have all been in more than three years. A thorough analysis of the source of foods does not show any way in which the patient could be getting metal. The cosmetics and tooth paste are all from reliable firms. She had been using zinc stearate between her toes, but she has discontinued this without relief of symptoms. She is employed as a bookkeeper in a business office. No one in her home is employed where there would be contact with any metal. The patient is not the type prone to hysteria. She has been to other physicians, who have done nothing for her. I find nothing in the literature about such a condition and would appreciate any suggestions. Please omit name.

M.D., New York.

ANSWER.—The cause of the metallic taste with otherwise completely negative observations would certainly suggest a psychoneurosis. Hallucinations of smell and taste occasionally occur in temporal lobe tumors, in which case other symptoms will soon appear. It is worth while attempting psychotherapy for this isolated subjective symptom.

USE OF INSULIN TO INCREASE WEIGHT

To the Editor:—I have a patient who is suffering from malnutrition and the accompanying underweight. All attempts to overcome this have up to the present been unsuccessful. I have heard reports that insulin has been used with success in these cases, but what literature I have read on the subject does not confirm this. Can you give me any information or references?

J. MILTON HENRY, M.D., Chicago.

ANSWER.—There have been many favorable reports concerning the use of insulin for increasing weight. A concise review of the work reported in this country may be found in the paper by James J. Short, M.D., "Increasing Weight with Insulin" (*J. Lab. & Clin. Med.* **14**:330 [Jan.] 1929). This author ascribes this effect of insulin chiefly to the strong sensation of hunger which it produces, and advocates doses of about 10 units, three times a day, before meals. He favors a rather high fat diet with insulin, since the hunger occasioned by insulin may in some cases be allayed by relatively small quantities of carbohydrates.

An excellent review of the German literature on this subject may be found in the small monograph by Frank and Wagner, "Insulintherapie" (Leipzig, Georg Thieme, 1931). These authors discuss the theoretical considerations involved in this action of insulin, such as the retention of water and its influence on fat, protein and carbohydrate metabolism. They advocate doses of at least 40 units a day and as much as 20 units three times a day. With such doses, of course, the carbohydrate intake must be sufficiently great to avoid severe hypoglycemic reactions. The patient should receive, half an hour after the injection, at least 1.5 or 2 Gm. of carbohydrates for every unit of insulin injected. Even so the patient may have symptoms of hypoglycemia within two or three hours. He should therefore have in readiness a snack of some sort with which to satisfy his hunger and relieve his symptoms. A chocolate bar is suggested as a convenient emergency ration.

DEMENTIA PARALYTICA

To the Editor:—Can an individual in whom serologic examination of both blood and spinal fluid is negative have dementia paralytica in any of its stages? Could he be in evolutionary stages and show negative serologic results? In Bagly's Handbook on Venereal Disease, 1930 edition, page 59, I note what he terms "pseudogeneral paralysis"; and he indicates that the patient does not lose the power of self criticism and the realization of time and space are not lost; unlike the general paralytic, the patient realizes he has something wrong with his brain and fears that he may be going mad. This disease, he says, is caused by diffuse cerebral endarteritis, and often is combined with cerebral gummas. Would a patient with "pseudogeneral paralysis" necessarily have to show a positive serologic picture? How long would he be supposed to live? Would he be protected from the effects of overt acts in a medicolegal way, the same as in general paralysis? Please omit name.

M.D., Tennessee.

ANSWER.—There is some question as to whether a diagnosis of dementia paralytica can be made in the presence of both negative blood and spinal fluids. It is possible that an occasional patient with the mental symptoms of this disease may have a negative Wassermann reaction. Neurologists are usually the men who demand a strongly positively Wassermann reaction in both spinal fluid and blood in a nontreated case before they will make the diagnosis.

In the meningeal types of syphilis, of which the diffuse cerebral endarteritis is a part, there may be a completely negative blood and spinal fluid in the presence of mental symptoms. If the patient has mental symptoms, they should be controlled but would follow the medicolegal aspect of any insane patient. One cannot say how long life can be prolonged. With treatment it will probably be much longer, but without treatment disease will probably last longer than in a case of dementia paralytica without treatment.

POSSIBILITY OF PREGNANCY AT MENOPAUSE

To the Editor:—I have a patient who has not menstruated since last March. She is 45 years of age and has two children, the youngest of whom is 12 years of age. She has the various symptoms of the menopause. She is anxious to know whether there is even a remote possibility of again becoming pregnant. Can I tell her positively that it is impossible for her to become pregnant? Please use my initials only and no address.

M.D., New York.

ANSWER.—This patient should not be told positively that it is impossible for her to become pregnant. In spite of the fact that she has not menstruated for ten months and has symptoms of the menopause, there is a possibility that she may again conceive because impregnation may occur during or after the menopause. As a rule, when conception takes place after the menopause it does so within a year of the last menstrual period; but women have also become pregnant a number of years after the cessation of the menses. In some of these cases impregnation takes place following a long period of amenorrhea, whereas in other instances the menstrual flow returns a number of years after the menopause and it is at this time that conception may occur.

HOARSENESS DURING MENSTRUAL PERIODS

To the Editor:—A girl, aged 15 years, for the past two years has been getting hoarse a few days before her menstrual period and the hoarseness continues into the period. She has a congenital amblyopia with a high error of refraction causing intense headaches; this has been corrected. Menstruation started at the age of 12 and has always been irregular and painful. I have seen her the past two months, and six days before menstruation she got hoarse so she could not talk above a whisper; the condition cleared up during menstruation. There is a slight congestion of the larynx and at no time any bleeding. All other physical examinations are negative. Is this a case of vicarious menstruation? What is the treatment and prognosis? Please omit name and address.

M.D., Texas.

ANSWER.—This is not a case of vicarious menstruation because there is no actual bleeding from the mucous membrane of the throat. Vicarious menstruation refers only to those rare instances in which hemorrhages occur in extragenital organs at regular intervals which correspond with the menstrual periods.

When the extragenital bleeding entirely replaces the usual uterine flow it is called substitutional, and when it occurs along with the normal uterine hemorrhage it is called supplementary menstrual hemorrhage.

It is difficult to give a satisfactory explanation for the hoarseness in this case. There may be a psychic factor to account for it because the menstrual periods are always painful. Another possible explanation may be periodic swelling of the thyroid gland. In some women the thyroid gland regularly enlarges just before or during the menses, and this enlargement may be seen and felt. It is conceivable that such a swelling may involve the recurrent laryngeal nerves that supply the vocal cords. It is also possible that the enlarged thyroid may compress the trachea and thereby produce the hoarseness. If enlargement of the thyroid gland is the cause of the hoarseness, it may be difficult to control these periodic swellings unless the administration of iodine or inodine alternating with thyroid for a few days before the hoarseness appears will help. If there seems to be a psychic factor for the hoarseness, an attempt should of course be made to overcome this.

TREATMENT OF PROGRESSIVE MUSCULAR DYSTROPHY

To the Editor:—I have a patient with progressive muscular dystrophy of the scapulohumeral type. He is now about 18 years old and showed degeneration of these muscles when about 14. The physicians of a dispensary have suggested intramuscular injections of 3 drops of epinephrine hydrochloride and 1/20 grain of pilocarpine hydrochloride. I am unable to find out why they would think that pilocarpine could possibly do this patient any good. Could you? Is this an accepted treatment for progressive muscular dystrophy? Can you give me any information about this treatment? Can you suggest a treatment that might reasonably be of service? Please omit name.

M.D., Minnesota.

ANSWER.—As far as can be determined, no treatment of any kind is of any avail for progressive muscular dystrophy. All sorts of procedures have been tried, all sorts of drugs used, and of late many glandular extracts have been tried without any results. That possibly the progressive muscular dystrophy is due primarily to some metabolic disorder conditioned by endocrine dysfunction is the current feeling.

DANGERS OF CARBON TETRACHLORIDE IN SHAMPOO

To the Editor:—A patient of mine is using a scalp lotion composed of fruit juices combined with carbon tetrachloride. Is such a lotion harmless? Kindly omit name.

M.D., Massachusetts.

ANSWER.—Shampooing with carbon tetrachloride may cause dyspnea, vertigo and headache as the consequence of inhalation of large amounts. One death has been reported from this cause. Impure carbon tetrachloride causes a severe dermatitis. When it is used as a scalp lotion this danger would be slight; but if there is any danger whatever the use of other harmless drugs would be advisable. See Alderson, H. E.: Carbon Tetrachloride in Dermatology (*Arch. Dermat. & Syph.* **8**:411 [Sept.] 1923).

EFFECTS OF OOPHORECTOMY

To the Editor:—Is there any known drug or treatment that will ameliorate the symptoms of artificial menopause caused by bilateral oophorectomy in a young woman. My patient, a school teacher, aged 25, necessarily had bilateral oophorectomy done because of large dermoid cysts of each ovary.

M. J. REXNER, M.D., Goodland, Kan.

ANSWER.—There is no specific treatment. Thyroid extract in small doses is the only drug of accepted value. Sodium bromide, avoidance of coffee, and life outdoors are helpful.

RENDU-OSLER-WEBER'S DISEASE

To the Editor:—IN THE JOURNAL, Aug. 10, 1929, page 478, while I was in Europe, I read the letter and your reply to the query made by Dr. H. A. Brown, Whitinsville, Mass., concerning a woman about to come to labor (August 15), a "partial bleeder." She had almost uncontrollable hemorrhage in her first confinement nine years previously. Her father had "pronounced hemophilia" (?). She did not bleed abnormally after the extraction of teeth or after cuts. The doctor could not understand why the condition was not sex-bound in his case of "hemophilia." These cases may have been, not hemophilia but instances of Rendu-Osler-Weber's disease or perhaps instances of Frank Glanzmann's hereditary hemorrhagic thrombasthenia, probably the former. Epistaxis, platelet count, bleeding and clotting time and clot retraction are not mentioned. You do not mention "Osler's disease" as one of the causes of hemorrhage from the lungs, bronchi and trachea, in your reply to Dr. H. F. Gammons, Lockport, N. Y., in THE JOURNAL, Aug. 3, 1929, page 402.

HYMAN I. GOLDSTEIN, M.D., Camden, N. J.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

AMERICAN BOARD FOR OPHTHALMIC EXAMINATIONS: Philadelphia, June 8, 1931. Sec., Dr. William H. Wilder, 122 S. Michigan Ave., Chicago, Ill.

CALIFORNIA: Reciprocity, San Francisco and Los Angeles, March 18, 1931. Sec., Dr. C. B. Pinkham, 420 State Office Bldg., Sacramento, Calif.

MONTANA: Helena, April 7, 1931. Sec., Dr. S. A. Cooney, Power Block, Helena, Mont.

NEW MEXICO: Santa Fe, April 13-14, 1931. Sec., Dr. W. T. Joyner, 20-21 First National Bank Bldg., Roswell, N. M.

WISCONSIN: Madison, March 21, 1931. Basic Science. Sec., Prof. R. N. Bauer, 3414 W. Wisconsin Ave., Milwaukee, Wis. Milwaukee, April 14, 1931. Reciprocity Applications. Sec., Dr. R. E. Flynn, 315 State Bank Bldg., La Crosse, Wis.

Florida November Examination

Dr. William M. Rowlett, secretary of the Board of Medical Examiners of Florida, reports the written examination held at Jacksonville, Nov. 10-11, 1930. The examination covered 10 subjects and included 100 questions. An average of 75 per cent was required to pass. Forty-four candidates were examined, 39 of whom passed and 5 failed. The following colleges were represented:

PASSED — College	Year Grad.	Per Cent
Yale University School of Medicine	(1925)	88.9
Atlanta College of Physicians and Surgeons	(1900)	80.2
Emory University School of Medicine	(1916) (1928) 84.2, 86, (1929) 84.5	80.8
University of Georgia Medical Department	(1927) 80.8, (1930)	84.9
Northwestern University Medical School	(1923)	82.9
Indiana University School of Medicine	(1927)	79.6
University of Louisville School of Medicine	(1920)	83.1
Tulane University of Louisiana School of Medicine	(1923) (1928) 86.1, (1930) 86.3, 86.7	89.2,
University of Maryland School of Medicine	(1907)	85.5
Boston University School of Medicine	(1890) 81.2, (1891)	78.7
Harvard University Medical School	(1927) 83.9, (1928)	82.9
Tufts College Medical School	(1930)	83.9
Bellevue Hospital Medical College	(1875)	83.2
Columbia University College of Phys. and Surgs.	(1891) (1900) 83.6	78.4
University of Buffalo School of Medicine	(1896)	81.2
Miami Medical College	(1893)	83.2
Jefferson Medical College	(1921)	85.6
Medical College of the State of South Carolina	(1927)	84.9
Vanderbilt University School of Med.	(1915) 84.2, (1928) 83.7,	87.7
Medical College of Virginia	(1915) 83.4, (1930)	83.2
University of Toronto Faculty of Medicine	(1915)	88.2
University of Western Ontario Faculty of Medicine	(1909)	80.5
University of Havana Faculty of Medicine	(1912) (1923) 76.2, (1924) 76.4*	76.7*
University of Naples Faculty of Medicine	(1923)	77.1

FAILED — College	Year Grad.	Per Cent
Louisville Medical College	(1904)	70
University of Louisville School of Medicine	(1898)	68.5
Missouri Medical College	(1884)	66.3
University of Nashville Medical Department	(1904)	74.1
University of Havana Faculty of Medicine	(1921)	69.6*

* Verification of graduation in process.

Colorado October Examination

Dr. William W. Williams, secretary of the Board of Medical Examiners of Colorado, reports the written examination held at Denver, Oct. 7, 1930. The examination covered 8 subjects and included 80 questions. An average of 75 per cent was required to pass. Five candidates were examined and passed. The following colleges were represented:

PASSED — College	Year Grad.	Per Cent
Kansas City College of Medicine and Surgery	(1926)	78.6
University of Kharkov Faculty of Medicine	(1928)	76 *
Osteopaths	75.3, 75.4,	85.2

Dr. Williams also reports 12 physicians licensed by the endorsement of credentials at the same meeting. The following colleges were represented:

ENDORSEMENT OF CREDENTIALS — College	Year Grad.	Endorsement of
Hahnemann Medical College, Chicago	(1908)	Illinois
Loyola University School of Medicine	(1930)	Illinois
Rush Medical College	(1883)	Iowa
Harvard University Medical School	(1927)	N. B. M. Ex.
University of Michigan Medical School	(1929)	Michigan
St. Louis University School of Medicine	(1930)	Missouri
Lincoln Medical College	(1907), (1916)	Nebraska
University of Nebraska College of Medicine	(1905)	Nebraska
Jefferson Medical College	(1923)	N. Carolina
Meharry Medical College	(1895)	Texas
University of Texas School of Medicine	(1929)	Texas

* Verification of graduation in process.

Book Notices

THE TREATMENT OF CHILDREN'S DISEASES WITH SPECIAL FORMULAS AND DRUGS FOR CHILDHOOD, AND A SHORT DIAGNOSTIC SUMMARY OF EACH CLINICAL PICTURE. By Prof. Dr. F. Lust, Director of the Children's Hospital, Karlsruhe. Authorized translation of the sixth German edition with additions by Sandor A. Levinsohn, M.D., Associate Pediatrician to the Barnert Hospital, Paterson, N. J. Cloth. Price, $8. Pp. 513. Philadelphia: J. B. Lippincott Company, 1930.

This book had already been translated into Italian, Spanish and Russian. The sixth edition now has been translated into English. There are relatively few books in English that deal mainly with the treatment of children's diseases. The translation differs in certain respects from the original in order to conform with accepted American ideas, as on diabetes and vaccination and on the dosage of tetanus and diphtheria antitoxin. Dr. Lust has furnished additional notes since the sixth German edition expressing his latest views on such things; for example, acid milk mixtures, milk-free feeding, rickets, pernicious anemia, asthma, bronchopneumonia, celiac disease, spasmophilia, scarlatina and congenital syphilis. The translator has also included ideas, methods and formulas derived from other European clinics and from American authors.

This is essentially a practical book for the pediatrician and especially a guide for the general practitioner doing some pediatrics. There is practically nothing on etiology. The diagnosis and differential diagnosis are mostly in outline or compound form, which seeks to recapitulate the salient features of each clinical picture in the form of a short sketch. Only the high points are touched. However, more attention is given to the diagnosis of strictly pediatric conditions than to those that occur also in the adult. There are no illustrations.

The treatment is dealt with in more detail. It is definite and practical although conservative in the sense that no whims of the authors have influenced the accepted standards of treatment. The authors attempt to separate the chaff of therapy from the wheat. They also discuss proprietary preparations and indicate such medicaments as are of doubtful value. Only the most reliable methods for handling each condition are described, and only those methods included with which the authors have had personal experience. The first part of the book is divided into two sections. One section, of 339 pages, is devoted to the outline diagnosis and detailed therapy of the various infants' and children's diseases according to the group of organs affected, such as the heart and blood vessels, glands of internal secretion, and skin. The second section, of thirty pages, describes therapeutic technic, such as methods of blood transfusion, baths, breathing exercises and inhalations. The second part of the book is divided into two sections. The first section, of 117 pages, constitutes a miniature pediatric pharmacopeia. Nearly all the practical drugs are listed with their synonyms, physical properties, uses, dosages and antidotes. Besides giving general rules for the dosages, four groups are considered: doses for infants, children from 2 to 5 years, school children from 6 to 12, and adults. The maximum dose for adults is also given. If a drug cannot be used for infants, the dosage for this group is omitted. The preparations of certain infant foods are also described, such as butter-flour mixtures and albumin milk. The second section, of three pages, is devoted to toxicology. The book is a manual of therapy, not for the undergraduate student but for the practicing physician.

THERAPIE IN EINZELDARSTELLUNGEN: WISSENSCHAFTLICHE GRUNDLAGEN UND PRAKTISCHE ANWENDUNG. Herausgegeben von Prof. Dr. R. von den Velden, und Priv.-Doz. Dr. P. Wolff. Therapie der komplizierten Schwangerschaft. Von Professor Dr. Rud. Th. von Jaschke, Direktor der Universitäts-Frauenklinik in Giessen. Paper. Price, 3.10 marks. Pp. 71. Leipzig: Georg Thieme, 1931.

The author sets forth in a precise and condensed form the treatment of the complications of pregnancy. The subject is divided into three parts, including complications due to anomalies of the ovum and membranes, complications dependent on pregnancy per se, and diseases of the mother complicating pregnancy. No new modes of therapy are revealed, but the well recognized methods of treatment are described in detail, actual prescriptions of medication being frequently presented. The author recommends the conservative treatment for eclampsia, describing in detail the alternation of morphine and chloral hydrate, which he describes as the Zwiefel-Stroganoff treatment. Retroversions in early pregnancy are not manipulated until the second half of the third month, when, if the condition is still present, the cervix is brought down with volsella and the uterus replaced by forward pressure of a finger in the rectum. This is important to avoid incarceration. For the treatment of pyelitis, the author asserts that diet plays the most important part in determining the reaction of the urine. He presents complete lists of common foods classified as to whether alkaline or acid. On the alkaline diet, 4 Gm. of sodium bicarbonate is given three times daily, and on the acid diet 0.5 Gm. of methenamine three times daily. *Trichomonas vaginalis* vaginitis is treated by scrubbing the entire vagina with 1 per cent corrosive mercuric chloride followed by 10 per cent sodium bicarbonate in glycerin. When the condition is apparently cleared, cultures of *Bacillus bulgaricus* are implanted into the vagina. The book is comprehensive and precisely written and should be a valuable addition to the library of the student and the practitioner as well as of the specialist.

A TEXT-BOOK OF INORGANIC PHARMACEUTICAL CHEMISTRY FOR STUDENTS OF PHARMACY AND PHARMACISTS. By Charles H. Rogers, D.Sc., Professor of Pharmaceutical Chemistry in the College of Pharmacy, University of Minnesota. Cloth. Price, $7. Pp. 676, with 50 illustrations. Philadelphia: Lea & Febiger, 1930.

The text primarily is a commentary to the United States Pharmacopeia X and the National Formulary V, elucidating the reactions involved in their chemical processes, along with other useful information. In the greater majority of cases, methods for manufacturing, tests for identity and quantitative estimations are given for the compounds; also a list of the official preparations into which the compound enters and a concise description of the preparation and their uses. The book contains a number of minor errors; under potassium bicarbonate, baking-soda appears as a synonym (although in some countries this is known), while for sodium bicarbonate it is omitted; ammonium valerate is given the formula for the normal salt, while in the description it is stated as "having a somewhat varying composition." Furthermore, under thallium it is stated ". . . never used in medicine," causing the reader to wonder whether the author is familiar with the current uses of thallium acetate in depilatories. The printing is good. It is to be recommended as a reference work in that the author has refrained from describing in detail the therapeutic uses of the compounds in such a volume primarily for pharmacists.

KURZES HANDBUCH DER OPHTHALMOLOGIE. Herausgegeben von F. Schieck und A. Brückner. Band III: Orbita, Nebenhöhlen, Lider, Tränenorgane, Augenmuskeln, Auge und Ohr. Bearbeitet von M. Bartels, A. Birch-Hirschfeld, R. Cords, A. Linck, W. Löhlein und W. Meisner. Paper. Price, 134 marks. Pp. 745, with 454 illustrations. Berlin: Julius Springer, 1930.

The third volume of this handbook appeared promptly as promised, in sharp contrast to its big sister, the Graefe-Saemisch Handbuch. The first chapter of this volume is on disease of the orbit, by Birch-Hirschfeld. It follows in general the same chapter in Graefe-Saemisch by the same author but is abbreviated to 136 pages by the elimination of case reports and much of the bibliography. Like all of this author's work, the chapter is excellent, thorough and well worth careful perusal. The second chapter deals with anatomy and diseases of the nasal accessory sinuses and is written by Linck of Greifswald. Owing to the close relationship to the eye, such a purely rhinologic discussion occupies an important place in an all embracing ophthalmic textbook. It is interesting to note the definite stand of the author regarding the rhinogenic origin of retrobulbar neuritis, based evidently on extensive clinical experience. This chapter occupies 106 pages. Next comes Löhlein, with 124 pages on the lids. This is a well written clinical chapter. The following chapter of 72 pages, by Meisner on the tear passages, is not of the same caliber and in many spots is too elementary for an advanced work of this type. The physiology of ocular movement is taken up by Cords in the next 50 pages. This is well done from the standpoint of physiology, physiologic optics and clinical application. Much miscellaneous information, scattered promiscuously throughout the literature, is compiled in this chapter, which is well worth the attention of every ophthalmologist. The pathology of eye movements is written by the same author and is allotted 170 pages. It is on a par with the pre-

ceding chapter. Due attention is given the work of English and American myologists as well as to the continental authors. For Anglo-Saxon tastes, the question of various types of strabismus could have been elaborated on somewhat more at length, but this is compensated for by the excellence of the work on muscle paralyses. This part is illustrated extensively and in a way that clarifies the well written text. It is not particularly easy to read but is well worth while reading. The last part of the text, 79 pages, is taken up by Bartels with a discussion of the eye and ear, particular attention being paid to nystagmus of various types. It is a valuable supplement. On the whole, this volume maintains the standard set by the two preceding volumes in every respect. Typographic errors are few; the illustrations are clean-cut, good, and pertinent to the text; and the indexing allows of easy accessibility to facts.

L'ARTHRITE CHRONIQUE DE LA HANCHE. Par L. Duvernay, médecin consultant à Aix-les-Bains. Paper. Price, 40 francs. Pp. 147, with 51 illustrations. Paris: Masson & Cie, 1930.

This little book deals with one phase only of the arthritic syndrome; namely, involvement of the hip. The subject is discussed under the heads of simple arthritis, proliferative arthritis, ankylosing arthritis and arthritis deformans and therefore does not fully fall in line with the two main divisions of atrophic and hypertrophic arthritis generally accepted in this country as well as in England under the terms rheumatoid and osteo-arthritis. Certain premonitory symptoms are stressed, which should be of some value to students of the subject, such as inguinal pain and the preservation of flexion, while abduction is difficult or impossible. Surgical treatment is briefly dismissed as usually inadvisable. Medical treatment is rather naively comprehended by recommendations that are free from any views but do not suggest an especially philosophic grasp of the subject of arthritis as a whole. There are many reproductions of roentgenograms which, as is so often the case, probably fail to do justice to the originals. The book is paper bound and rather heavy, though well printed. There is something to be said in favor of the publication of small books in paper form at a lower price than is necessary for a bound volume.

ABDOMINO-PELVIC DIAGNOSIS IN WOMEN. By Arthur John Walscheid, M.D., Director of Obstetrical and Gynecological Department of Broad Street Hospital. Cloth. Price, $12.50. Pp. 1000, with 397 illustrations. St. Louis: C. V. Mosby Company, 1931.

This is designed chiefly for the postgraduate and the general practitioner, and for student reference. It is written solely for diagnosis. The first third of the book is concerned with general gynecology. The remainder enters into detailed consideration of especial diseases of the various organs. The author assumes the rather unique view that illustrations leave only a fleeting impression and advocates that they be used sparingly. A fairly generous number of drawings are found throughout his book; in addition to illustrations from other works there are many photomicrographs, pictures of pathologic specimens, and a large number of somewhat unusual schematic and semidiagrammatic drawings. Walscheid has a fluent style and an unusually extensive vocabulary. He tends somewhat to confuse the reader by long drawn out dissertations on various topics that present the personal views and theories of the writer and are of only passing interest to the average reader. Despite the graceful manner of presentation, the book is rather difficult to read without fatigue. Salient points are hidden and important diagnostic items are often omitted or accorded only casual mention. The author's attitude relative to important factors in diagnosis is often in contrast with generally accepted views. For example, he describes the cancerous cervix as hard, whereas friability and bleeding are the commonly accepted pathognomonic features emphasized in the palpatory diagnosis of this disease. Although reference is made to some American authors of note, on the whole there is a dearth of names of men who are widely known in this field. This is probably the only textbook appearing within recent years which has accorded only passing mention to the name of John Sampson in the discussion of endometriosis —an oversight that can scarcely be forgiven in an American who writes a textbook on gynecologic diagnosis. Walschied has presented an unusual book—one that reveals an enormous amount of labor and presents many unique and interesting views. On the whole, however, it leaves one with the impression that there is a lack of fundamental scientific data to support the theories advanced and an absence of proper emphasis on essential features of diagnostic importance.

A DISEASE OF PARROTS COMMUNICABLE TO MAN (PSITTACOSIS). By E. L. Sturdee, O.B.E., M.R.C.S., and W. M. Scott, M.D., Medical Officers of the Ministry of Health. Ministry of Health. Reports on Public Health and Medical Subjects, No. 61. Paper. Price, 2s. 6d. Pp. 132, with illustrations. London: His Majesty's Stationery Office, 1930.

This report considers the recent outbreak of parrot fever, particularly as it affected England. There are sections on the history of the disease, its epidemiology, the clinical aspects and the pathologic anatomy. Dr. Levy Simpson participated in the preparation of three of these sections. The treatment of the disease with convalescent serum is considered rather too conservatively in view of the fact that at present this treatment is the only approach to specific treatment available. The section on etiology is by S. P. Bedson and G. T. Western. Mervyn Gordon contributes an article on virus studies of psittacosis. The view that psittacosis is caused by a filtrable virus is favored. The report is a valuable contribution to the literature on parrot fever, of especial interest perhaps to medical health officials, particularly in the practical aspects, but of value to all students of this disease.

CONSIDERACIONES CLINICAS Y NOSOLOGICAS SOBRE EL DELIRIO DE INTERPRETACION. Tesis que presenta para su examen general de Médico Cirujano y Partero. Por Edmundo Buentello y Villa. Paper. Pp. 139. Mexico, 1930.

This thesis is begun with a presentation of a typical case of paranoia. It is followed by a general discussion of this mental disturbance which also takes the hallucinatory and schizophrenic paranoias into consideration. The monograph is well written but references to medical literature are too few.

MANUAL OF HOSPITAL MANAGEMENT FOR U. S. MARINE HOSPITALS. By M. H. Foster, Medical Director, United States Public Health Service. U. S. Treasury Department, Public Health Service. Miscellaneous Publication, No. 29. Paper. Price, 65 cents. Pp. 303. Washington, D. C.: Supt. of Doc., Government Printing Office, 1930.

The manual is exactly what the name indicates and as such is complete and, without doubt, valuable for the use of those having to do with the management of United States marine hospitals. Much of the material would apply equally well to civilian hospitals. It contains chapters on hospital organization and administration, management of medical and surgical wards, dietetics, laundry, grounds, buildings and mechanical equipment. The appendix contains instructions, formulas, recipes and menus not usually found in books on hospital management, including directions for planting and care of evergreens on the hospital grounds.

THE EFFECT OF QUININE ON THE PRODUCTION OF GAMETOCYTES IN SUBTERTIAN MALARIA. By C. Russell Amies. Bulletins from the Institute for Medical Research, Federated Malay States, No. 2 of 1930. Paper. Pp. 10. Kuala Lumpur: Federated Malay States Government Printing Office, 1930.

Forty patients having gametocytes in their blood on admission to the hospital were given 2 Gm. of quinine hydrochloride daily and were observed for seven days or longer. A comparison of this series with another one consisting of forty patients treated similarly but without quinine treatment indicates that quinine does not affect the production of gametocytes. This conclusion is corroborated by a third series in which the gametocyte content of the patients' blood was estimated for several days before treatment and compared with the gametocyte content after treatment with quinine.

HANDBUCH DER GEISTESKRANKHEITEN. Herausgegeben von Oswald Bumke. Band VIII: Spezieller Teil. Teil 4: Syphilitische Geistesstörungen, Psychosen des Rückbildungs- und Greisenalters. Epileptische Reaktionen und epileptische Krankheiten. Bearbeitet von A. Bostroem, H. W. Gruhle, usw. Paper. Price, 76 marks. Pp. 751, with 70 illustrations. Berlin: Julius Springer, 1930.

This volume deals in particular with psychiatric disorders due to syphilis, arteriosclerosis and senility. An abstract of the contents, of course, cannot be given. It must be stated, as has been done as each volume of this handbook has been reviewed, that nothing as complete or as well done has ever appeared before and that each volume is invaluable.

DIET AND CARE OF THE SURGICAL CASE. By Reynold H. Boyd, M.B., Ch.B., F.R.C.S., Clinical Assistant at St. Peter's Hospital for Stone. With an introduction by C. C. Choyce, C.M.G., C.B.E., F.R.C.S., Director, Surgical Unit, University College Hospital, Medical School. Paper. Price, 5/–. Pp. 106. London: H. K. Lewis & Company, Ltd., 1930.

This is a handy manual concerning preoperative and postoperative care. After discussing a few general principles in regard to diet and the preparation of surgical patients, the author considers the various parts of the body and presents the salient features required in the treatment of a number of conditions affecting these. A portion of the book is devoted to the surgical care of children in general as well as conditions peculiar to childhood, such as cleft palate, harelip, intussusception, congenital pyloric stenosis and idiopathic dilatation of the colon. The manual is far from complete. It is essentially an outline of generally accepted standardized principles and procedures concisely presented.

Medicolegal

Compensability of Pneumonia

(Galuzzo v. State (Conn.), 149 Atl. 778)

Galuzzo worked himself into a sweat one winter day, shoveling sand in the course of his employment, and immediately thereafter rode in the cab of a truck for some distance. This was repeated several times, until late in the afternoon he was taken home, ill, cold, and sore in his back and legs. Pneumonia developed and he died. The compensation commission denied compensation to his widow on the theory that if the pneumonia was traceable to the employment it could be only through weakened resistance or lowered vitality, and that it therefore came within the provisions of section 7, chapter 307, Public Acts of 1927, the Workmen's Compensation Act, in part as follows:

> A personal injury shall not be deemed to arise out of the employment unless causally traceable to the employment other than through weakened resistance or lowered vitality.

The order of the commission was affirmed by the superior court, and the widow appealed to the Supreme Court of Errors of Connecticut.

In two cases previously decided by this court, said the Supreme Court of Errors, compensation was denied where an employee, doing arduous work under abnormal weather conditions, contracted pneumonia and died. *Linnane* v. *Aetna Brewing Co.*, 91 Conn. 158, 99 Atl. 507, L. R. A. 1917D, 77; *Dupre* v. *Atlantic Refining Co.*, 98 Conn. 646, 120 Atl. 288. Compensation can be awarded only for personal injury and for occupational disease. Pneumonia cannot be an "occupational disease" within the meaning of the compensation act, because an occupational disease is there defined as a disease peculiar to the occupation in which the employee is engaged, due to causes in excess of the ordinary hazards of employment. The claimant's right to compensation, therefore, must rest on proof that the deceased suffered a "personal injury," and this must be an accidental injury, which can be definitely located as to the time when and the place where the accident occurred (Pub. Acts 1927, chap. 307, sections 2 and 7); "a localized abnormal condition of the living body directly and contemporaneously caused by accident" (*Linnane* v. *Aetna Brewing Co., supra*). The concurrence of accident and injury is a condition precedent to the right to compensation. It is possible to satisfy the foregoing definition of "accident" by proof of exposure or other severe working conditions. As to contemporaneousness, however, it appears quite conclusively, said the court, that the pneumonia was not a contemporaneous result of the exposure, and that the only contemporaneous result which could have been caused was a weakened resistance and a lowered vitality, which cannot be the basis of any compensable personal injury.

The judgment of the commissioner in denying compensation was accordingly affirmed.

Evidence: Certainty of Expert Testimony.—The testimony of three physicians and a chiropractor, it was contended, invaded the province of the jury, in that the witnesses were not asked for their *opinions*, but for their *conclusions*, as to whether the accident caused the condition from which the plaintiff suffered and whether the injuries received in the accident *could* cause her invalidism. The condition of the plaintiff, said the Kansas City Court of Appeals, was fully described by lay witnesses, whose evidence tended to exclude all other causes than the shock and injury received. From that evidence alone, the jury could find that her condition when she instituted suit resulted from the injury. There was no reason, therefore, why she should be deprived of the cumulative evidence of her physicians and should not avail herself of their opinion that her condition might or could reasonably and probably result from her injuries. The case is to be distinguished from *O'Leary* v. *Scullin Steel Company*, 303 Mo. 663, 260 S. W. 55, which in no manner limits or prohibits expert testimony as usually employed in a typical personal injury case. The O'Leary case, however, establishes an exception as to the weight and sufficiency of expert testimony on a given issue which may be proved only by the evidence of men of science. In such a situation the testimony must be explicit and positive, from cause to effect, that the stated injury did in fact cause the condition which followed.—*Stevens v. Westport Laundry Co. (Mo.), 25 S. W. (2d) 491.*

Society Proceedings

COMING MEETINGS

Alabama, Medical Association of the State of, Birmingham, April 21-24. Dr. D. L. Cannon, 519 Dexter Avenue, Montgomery, Secretary.

American Association for the Study of Goiter, Kansas City, Mo., April 7-9. Dr. J. R. Yung, 670 Cherry Street, Terre Haute, Ind., Secretary.

American Association of Anatomists, Chicago, April 2-4. Dr. George W. Corner, University of Rochester School of Medicine, Rochester, N. Y., Secretary.

American Association of Pathologists and Bacteriologists, Cleveland, April 2-3. Dr. H. T. Karsner, 2085 Adelbert Road, Cleveland, Sec'y.

American College of Physicians, Baltimore, March 23-27. Mr. E. R. Loveland, 133 South 36th Street, Philadelphia, Executive Secretary.

American Gastro-Enterological Association, Atlantic City, May 4-5. Dr. Charles G. Lucas, 307 West Broadway, Louisville, Secretary.

American Orthopedic Association, Memphis, Tennessee, April 15-18. Dr. DeForest P. Willard, 1916 Spruce Street, Philadelphia, Secretary.

American Pediatric Society, Edgewater Park, Mississippi, April 15-17. Dr. H. C. Carpenter, 1805 Spruce Street, Philadelphia, Secretary.

American Physiological Society, Montreal, April 8-11. Dr. Arno B. Luckhardt, 5216 Greenwood Avenue, Chicago, Secretary.

American Society for Clinical Investigation, Atlantic City, May 4. Dr. Cyrus C. Sturgis, Simpson Memorial Institute, Ann Arbor, Mich., Sec'y.

American Society for Experimental Pathology, Montreal, April 8-11. Dr. C. Phillip Miller, Jr., University of Chicago Department of Medicine, Chicago, Secretary.

American Society for Pharmacology and Experimental Therapeutics, Montreal, April 8-11. Dr. E. D. Brown, University of Minnesota Medical School, Minneapolis, Secretary.

American Society of Biological Chemistry, Montreal, April 8-11. Dr. H. B. Lewis, University of Michigan Medical School, Ann Arbor, Mich., Secretary.

Arizona State Medical Association, Nogales, May 7-9. Dr. D. F. Harbridge, Goodrich Building, Phoenix, Secretary.

Arkansas Medical Society, Texarkana, April 21-24. Dr. William R. Bathurst, Boyle Building, Little Rock, Secretary.

Association of American Physicians, Atlantic City, May 5-6. Dr. James H. Means, Massachusetts General Hospital, Boston, Secretary.

California Medical Association, San Francisco, April 27-30. Dr. Emma W. Pope, 450 Sutter Street, San Francisco, Secretary.

Conference of State and Provincial Health Authorities of North America, Washington, D. C., April 29-30. Dr. A. J. Chesley, State Board of Health, St. Paul, Minnesota, Secretary.

District of Columbia, Medical Society of, Washington, May 6. Dr. C. B. Conklin, 1718 M Street, N. W., Washington, Secretary.

Federation of American Societies for Experimental Biology, Montreal, April 8-11. Dr. H. B. Lewis, University of Michigan Medical School, Ann Arbor, Mich., Secretary.

Hawaii Territorial Medical Association, Wailuku, Maui, May 1-2. Dr. F. J. Pinkerton, Young Building, Honolulu, Secretary.

Illinois State Medical Society, East St. Louis, May 5-7. Dr. Harold M. Camp, Lahl Building, Monmouth, Secretary.

Kansas Medical Society, Manhattan, May 5-7. Dr. J. F. Hassig, Huron Building, Kansas City, Secretary.

Louisiana State Medical Society, New Orleans, April 14-16. Dr. P. T. Talbot, 1430 Tulane Avenue, New Orleans, Secretary.

Maryland, Medical and Chirurgical Faculty of, Baltimore, April 28-30. Dr. John T. King, Jr., 1211 Cathedral Street, Baltimore, Secretary.

Minnesota State Medical Association, Minneapolis, May 4-6. Dr. E. A. Meyerding, 11 West Summit Avenue, St. Paul, Secretary.

North Carolina, Medical Society of the State of, Durham, April 20-22. Dr. L. B. McBrayer, Southern Pines, Secretary.

South Carolina Medical Association, Greenville, May 5-7. Dr. E. A. Hines, Seneca, Secretary.

Tennessee State Medical Association, Knoxville, April 14-16. Dr. H. H. Shoulders, 706 Church Street, Nashville, Secretary.

Texas, State Medical Association of, Beaumont, May 5-7. Dr. Holman Taylor, Medical Arts Building, Fort Worth, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Issues of periodicals are kept on file for a period of five years only. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending, but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American J. Obstetrics & Gynecology, St. Louis

21: 1-156 (Jan.) 1931

Age Period Changes in Cervix Uteri: Cancer Development. N. Freedman, Montreal.—p. 1.

*Etiologic Factors in Carcinoma of Cervix. F. R. Smith, New York.—p. 18.

*Nephritis in Pregnancy. E. J. Stieglitz, Chicago.—p. 26.

*Placenta Praevia at Johns Hopkins Hospital. C. H. Peckham, Baltimore.—p. 39.

Radiation Treatment of Amenorrhea and Sterility. I. I. Kaplan, New York.—p. 52.

*Arsenic Content of Human Placenta Following Arsphenamine Therapy. N. J. Eastman, Baltimore.—p. 60.

*Coordination of Uterus in Labor. L. Rudolph and A. C. Ivy, Chicago.—p. 65.

*Rhabdomyosarcoma of Corpus Uteri. P. F. Shapiro, Chicago.—p. 83.

Krukenberg Tumors of Ovary: Case Secondary to Adenocarcinoma of Jejunum. A. E. Bennett and M. Douglass, Cleveland.—p. 91.

Twin Papyraceous Fetuses in Triplet Pregnancy. K. M. Beierlein, Ann Arbor, Mich.—p. 97.

*Aniline Poisoning in New-Born: Thirteen Cases. A. A. Weinberg, Brooklyn.—p. 104.

Case of Nosencephalus with Eventration of Abdominal and Chest Organs, Polyhydramnios and Other Anomalies. S. H. Polayes and J. D. Soifer, Brooklyn.—p. 109.

Two Cases of Twin Pregnancy with Early Death of One Fetus. T. J. Parks, Fairfield, Ala.—p. 112.

Pregnancy as Complication of Neurofibromatosis: Four Cases. J. I. Kushner, New York.—p. 116.

Case of Intra-Abdominal Hemorrhage from Rupture of Uterine Vein During Pregnancy. H. C. Falk, New York.—p. 118.

Hemorrhage into Hydatid of Morgagni Simulating Acute Appendicitis. A. Heinrich, Brooklyn.—p. 120.

Case of Chronic Menorrhagia Cured by Galvanic Dilation and Zinc Chloride Ionization. V. C. Pedersen, New York.—p. 122.

Rachitic Naegele Type Pelvis with Faulty Inclination and Marked Spinal Deformity. J. B. Jacobs, Washington, D. C.—p. 125.

Mono-Amniotic Twins with Twisted Cords. T. J. Williams, Great Falls, Mont.—p. 129.

Case of Uterus Unicornis with Rudimentary Left Uterus and Right Ectopic Pregnancy. D. W. Hart, St. Johns, Mich.—p. 131.

Pregnancy in Uterus Bicornis Unicollis with Child Occupying One Horn and Placental Site a Portion of Both. W. A. Michael, Peoria, Ill.—p. 133.

Hemiplegia Complicating Pregnancy. P. A. Perkins, Memphis, Tenn.—p. 135.

Case of Pregnancy Complicated by Multiple Fibroids of Uterus. J. J. Gill, Chicago.—p. 137.

New Obstetric Forceps. E. H. Zweifel, Munich, Germany.—p. 138.

Etiologic Factors in Carcinoma of Cervix.—A series of 226 cases of known carcinoma of the cervix has been compared by Smith with an almost equal number (202) of patients who have escaped the disease, in the attempt to discover wherein the two series differ and with the hope of finding possible etiologic factors. Only patients that had had two or more pregnancies and had reached the age of cancer incidence have been selected for the control group. Knowing cancer of the cervix to be a disease of the poor, all of the control group were selected from this class of patients. Parturition with its resulting damage to the cervix is a generally accepted etiologic factor in cancer of the cervix. With the majority of cancer patients proving to be multiparous, this factor increases in importance with the number of pregnancies. The incidence of the disease is known to be higher among the poorer classes. Smith's study shows that there are apparently five additional possible factors. (*a*) Length of time between marriage and first delivery (more than two years being selected for these statistics) with the suggestion of a possible field for investigation as to contraceptives used. (*b*) Use of douches with compound solution of cresol. (*c*) More than one instrumental delivery. (*d*) Dry labor. (*e*) Untreated cervical lesions as manifested by leukorrhea. One of these five possible factors was not present more often in cancer patients than in the control group but, with the incidence of two or more of the factors present, the inequality in percentages of each group total progressively increased with the increase in number of factors. It can certainly be considered that when two or more of these additional factors are present with the known factors of parturition and poverty, the incidence of cancer of the cervix is increased. Menstruation is not shown to be a factor in carcinoma of the cervix. Possible factors suggested as fields for further investigation are: (*a*) Incidence of induced abortions, with especial reference to instrumentation. (*b*) Contraceptives: types and duration of use. (*c*) Duration of labor. (*d*) Frequency of intercourse. (*e*) Observance of Mosaic laws.

Nephritis in Pregnancy.—Fifty-five cases of nephritis in pregnancy have been analyzed by Stieglitz. Nephritis in pregnancy is clearly divisible into three major classes: (*a*) The nephritis of pregnancy (syndrome of renal fatigue in pregnancy). (*b*) Eclamptic intoxication. (*c*) Preexisting renal and/or vascular disease exacerbated by pregnancy. A fourth group includes all those cases having other complications, such as cardiac disease, thyrotoxicosis, infections, and obstetric difficulties. Each of these groups is clearly defined and retains individual characteristics. The clinical syndrome, date and type of onset, associated changes, mode of therapeutic attack, and the prognosis differ in each group. Efficient therapy can be obtained only through proper recognition of the type of renal disease, careful consideration of the causative factors of the renal injury, and constant cognizance of the condition of the patient. It is not the disease that requires treatment but the patient.

Placenta Praevia at Johns Hopkins Hospital.—In a service of more than 36,000 admissions, Peckham says that placenta praevia occurred in 146 instances, or approximately 1 in 250. In women admitted as emergency cases, the incidence is 1 in 30, whereas among those registered for prenatal care it is 1 in 500. It occurs once in every 98 deliveries in white women, and once in every 158 in Negro women. The gross maternal mortality for the series was 10.96 per cent. It is higher in the Negro than in the white race, being 13.21 per cent and 9.68 per cent, respectively. The maternal death rate from 1896 to 1910 was 19.23 per cent; since 1920 it has fallen to 8.64 per cent. In 57 cases of the marginal type there was only 1 death (1.75 per cent); 14.75 per cent of the cases of the partial type terminated fatally, while central placenta praevia gave a mortality of 21.43 per cent. The mortality was 5.36 per cent when the initial examination revealed the woman to be in good condition. This figure rises in the group classed as "fair," and when the situation was deemed ominous on admission, the mortality reached 36.84 per cent. In 33 women admitted with a pulse below 90 there was not a single death. In 17 women admitted with the cervix closed there was not a single death. The highest maternal mortality (25.53 per cent) occurred in the group delivered immediately after admission. This group included cases of accouchement forcé, widely dilated cervix, with bleeding throughout some hours of labor. There was not a single death among 35 women who were delivered not less than twelve hours after admission. Considering the maternal mortality from the point of view of duration of pregnancy, the rate was 4.55 per cent when the pregnancy ended prior to the last lunar month, whereas it was 15.58 per cent in those patients who were at or near term. A consideration of the maternal death rate according to the weight of the child likewise shows a higher figure where its weight exceeds 2,500 Gm. The mortality rate was 4.55 per cent in the primiparas as against a much higher one in the multiparas. The mortality was highest in women who had had ten or more previous pregnancies, 23.08 per cent. The highest mortality occurs in women aged 40 or more. Only 1 death occurred from infection. Hemorrhage was the most important factor in 13 instances. One woman died of infection, 1 of nephritis, and 1 of surgical shock the result of operative procedures before admission. In 6 of the 13 deaths due to bleeding, the condition of the patient on admission was desperate. Omitting these cases as not being directly the responsibility of the clinic, the corrected mortality falls to 5.80 per cent. The gross fetal mortality was 67.81 per cent. This is due partially to the large number of prematurely born infants; 46.32 per cent, or almost half, weighed less than

2,500 Gm. Considering only those babies weighing 2,500 Gm. or over, where the fetal heart beat was present on admission, the mortality falls to 38.71 per cent.

Arsenic Content of Placenta Following Arsphenamine Therapy.—Arsenic determinations were made by Eastman on twenty-one human placentas from patients who had been receiving prenatal arsphenamine therapy. After ten placentas had been analyzed, it was thought that the results would be more significant if the placentas were divided into fetal and maternal portions, and each portion analyzed for arsenic; in the last eleven placentas studied, this procedure has been carried out by a technic to be described shortly. Following antenatal arsphenamine therapy, arsenic is retained by the human placenta over periods as long as fifteen days after the last treatment. The duration of the retention is conditioned in part by the number of weekly injections the patient has had, a definite cumulative retention of arsenic being manifest. The retention of arsenic by the human placenta occurs chiefly in the fetal portion, which often contains three or four times the quantity demonstrable in the maternal part. The storage of arsenic by the human placenta, and particularly its greater concentration in the fetal part, may be an important factor in the beneficial action on the fetus resulting from arsphenamine therapy.

Coordination of Uterus in Labor.—Two cases of asymmetrical contractions of the uterus in labor are reported by Rudolph and Ivy. These cases raised the question of the mechanism concerned. A review of the embryology, comparative anatomy and physiology of the uterus shows that it has a bilateral origin and that the two halves, except where fused, act more or less independently. On fusion, a correlating mechanism becomes manifest. A type of coordinated activity manifested by the postpartum uterus of the dog has been studied. An extrinsic and an intrinsic mechanism has been discovered, one resident in the uterine wall and the other in the uterovaginal ganglions, the former being the most important; and it has been found that the dog's uterine motor mechanism in situ manifests the phenomena of refractory period and "summation." On the basis of a functionally defective coordinating mechanism, the irregularity in the uterine motility, obliquity of the uterus, in the two cases observed, is explained and a basis for the explanation of other types of abnormal motor activity is offered.

Rhabdomyosarcoma of Corpus Uteri.—A rare case of rhabdomyosarcoma of the corpus uteri is reported by Shapiro. It arose subserously, as a simple heterologous tumor, and apparently within a preexisting myoma. It developed from embryonic rests of striated muscle cells displaced in the course of the downgrowth of the wolffian duct.

Aniline Poisoning in New-Born.—In the thirteen cases reported by Weinberg, the poisoning resulted from the baby's body being wrapped in clothing freshly marked with the hospital identifying lettering. In practically all the cases the printing was found to be in contact with some part of the babies' bodies; in fact, definite staining was found on the skin of eight of the thirteen babies. The immediate measures that were undertaken to eradicate the danger were as follows: All new linens were removed from contact with the infants. The babies were thoroughly washed with alcohol or ether to remove all the print stains and were then clothed in linen that had already been boiled and washed. A mixture of oxygen and 5 per cent carbonic acid was administered to babies as needed. All babies were carefully observed every few minutes so that immediate measures could be undertaken if a patient suddenly became worse. The symptoms manifested were as follows: The pulse in every case became very rapid but maintained its regularity and rhythm. There was no variation of the temperature from normal. Respirations were greatly accelerated but continued regular. Cyanosis was marked in practically all cases. Cyanosis was most evident on the lips and eyelids. All suffered from anorexia. The degree of apathy was pronounced in practically all cases. The response to stimuli was decreased in every instance. Only one case showed what could be considered a convulsive seizure. The cry was decreased in strength in every case. The extremities tended to be cold and cyanosed in all cases. The subsequent course showed complete recovery in every case within a period of from twenty-four to seventy-two hours, without any observable harmful effects. The dye mixture used for marking contained phenol, levulinic acid, aniline, and induline dye (spirit soluble).

American Journal of Public Health, New York

21: 1-114 (Jan.) 1931

International Hygiene Exhibition. G. C. Dunham, Carlisle Barracks, Pa.—p. 1.
Comparison of Dominick-Lauter Test for B. Coli in Water with That of "Standard Methods." H. W. Leahy, J. W. Freeman and C. P. Katsampes, Rochester.—p. 11.
Research Laboratory and Public Health Work. A. Agramonte, Havana. —p. 19.
Control of Measles by Honorary Quarantine. L. W. Bridgman, Madison, Wis.—p. 26.
Health Problem in Mexico. R. Silva, Mexico City.—p. 31.
Decrease of Tuberculosis in Mexico. F. De P. Miranda, Mexico City. —p. 37.
Flooding as Method for Controlling Extensive Areas of Fly Breeding. H. Lara, M. M. Aycardo and M. Asuzano, Manila.—p. 43.
Typhoid Fever Epidemic in Leper Hospital, L. S. Huizenga, Shanghai, China.—p. 50.

American Review of Tuberculosis, Baltimore

23: 1-105 (Jan.) 1931

*Differential Quantitative Tuberculin Test. J. E. Blair and W. I. Galland, New York.—p. 1.
*Tuberculous Infection in Children as Bases on 3,500 Intracutaneous Tuberculin Tests. L. B. Dickey and R. P. Seitz, San Francisco.—p. 13.
Chemical Composition of Active Principle of Tuberculin. F. B. Seibert and B. Munday, Chicago.—p. 23.
Experimental Tuberculin Pneumonia. A. Larson and E. R. Long, Chicago.—p. 41.
Biophysical Properties of Tubercle Bacillus. M. C. Kahn and H. Schwarzkopf, New York.—p. 45.
Lysis of Tubercle Bacilli in Vitro. H. J. Corper, Denver.—p. 56.
Immunity and Biochemistry in Tuberculosis. C. H. Boissevain, Colorado Springs.—p. 66.
Epithelioid Cell. R. S. Cunningham and E. H. Tompkins, Nashville, Tenn.—p. 71.
Reserve Supply of Monocytes is Increased in Tuberculous Animals. J. T. Geiger, Nashville, Tenn.—p. 76.
Persons with Potential Vitamin Deficiency. B. Gordon and E. Flanders, Philadelphia.—p. 84.
*Intramuscular Use of Sodium Amytal in Advanced Tuberculosis. H. H. Cherry, Louisville, Ky.—p. 90.
Measurement of Generalized Nursing Service in Two Southern Cities in Relation to Tuberculosis Control. E. T. Krueger, Nashville, Tenn. —p. 93.

Differential Quantitative Tuberculin Test.—A differential quantitative intracutaneous tuberculin test using potent human and bovine tuberculin in parallel series is described by Blair and Galland. The dilutions used are so chosen that the basic dilution is of a potency comparable to that of the Mantoux test, and the series extends to dilutions sufficiently weak to exclude all but the truly hypersensitive tuberculin reactors. These dilutions, with tuberculin of a potency usually found in commercial samples, range from 1:10,000 to 1:10,000,000. Inclusion of both human and bovine tuberculin diminishes the possibility of missing occasional cases, which might be overlooked when only one type of tuberculin is used. A total of 471 cases is reported, comprising children and adults, tuberculous and nontuberculous. Of 121 tuberculous cases, 90.9 per cent reacted positively to the diagnostic dilutions, and 9 per cent gave a negative reaction. Of 350 nontuberculous cases, 92.5 per cent gave a diagnostically significant negative reaction and 7.4 per cent reacted to the diagnostic dilutions. Of 23 tuberculous cases tested with both human and bovine tuberculin, 4 (17.3 per cent) would have been missed had only one type of tuberculin been used.

Tuberculous Infection in Children.—Dickey and Seitz made 3,500 intracutaneous tuberculin tests on children. The incidence of tuberculous infection, as shown by such tests, increases with age. The incidence for the vicinity of San Francisco is 46.6 per cent at 14 years, about the beginning of adult life. This rate is compared with those obtained by similar methods in other communities. The authors assert that the Pirquet tuberculin test should not be employed in studies of this kind, since it gives erroneously low figures.

Sodium Amytal in Advanced Tuberculosis.—Cherry reports sixteen cases in which he administered from 3 to 5 grains (0.2 to 0.3 Gm.) of sodium amytal intramuscularly for hypnotic and analgesic purposes. It does not produce local pain or tissue change even in the most emaciated persons. Physiologically,

however, within fifteen minutes after injection the patients begin to experience mild cerebral depression, so that apprehension and muscular tension seem markedly restrained. The thalamus, along with the medulla, seems to be markedly influenced, so that pain and sensory reflexes are restrained. These actions of the drug grow in intensity for a period of three or four hours and are prolonged over a period of from eight to twenty-four hours, according to the size of the dose. In no instance has Cherry seen complete narcosis approached when the dose did not exceed 8 grains (0.5 Gm.). Similar amounts do not produce sleep from which the patient cannot be awakened easily and quickly to clear consciousness. Occasionally sleep is not without excitation, causing the patient to talk and move about in bed. The blood pressure or respiratory cycle is not appreciably disturbed. Gastro-intestinal motility is not disturbed, although almost every case presenting abdominal pain experienced marked alleviation.

Annals of Internal Medicine, Ann Arbor, Mich.

4: 669-880 (Jan.) 1931

Biology and Etiology of Cancer. L. Loeb, St. Louis.—p. 669.
Influence of Heredity on Occurrence of Cancer in Animals. H. G. Wells, Chicago.—p. 676.
*Heredity of Carcinoma in Man. A. S. Warthin, Ann Arbor.—p. 681.
Radiation Treatment. F. C. Wood, New York.—p. 697.
Spontaneous Pneumothorax: Causes. F. J. Hirschboeck, Duluth.—p. 705.
General Management of Pulmonary Tuberculosis. E. S. Mariette, Oak Terrace, Minn.—p. 723.
Myxedema Heart: Case. J. C. Davis, Minneapolis.—p. 733.
Foreign Bodies in Stomach. A. B. Rivers and H. L. Davison, Rochester, Minn.—p. 742.
Chronic Sinus Infection in Relation to Systemic Disease. N. W. Jones and F. E. Kistner, Portland, Ore.—p. 752.
Relation of Changes in Portal Circulation to Splenomegaly of Banti's Type. J. M. Johnston, Pittsburgh.—p. 772.
*Association of Cholecystitis with Cardiac Affections. M. Schwartz and A. Herman, Philadelphia.—p. 783.
*Cessation of Attacks of Auricular Paroxysmal Tachycardia By Use of Calcium. J. B. Wolffe and S. Bellett, Philadelphia.—p. 795.
Diagnosis of Gastric Lesions by Intragastric Photography. R. Finkelstein, Brooklyn.—p. 804.
Hereditary Juvenile Pellagra. C. J. Bloom, New Orleans.—p. 817.

Heredity of Carcinoma in Man.—Putting all of the observed facts together, Warthin says that the following data are available concerning hereditary susceptibility to neoplasms: multiple incidence of neoplasms in family generations; dominant inheritance of neoplasms in some families; recessive inheritance of neoplasms in some families; "Durchschlag" inheritance in some families; appearance of neoplasms at an early age in the later generations; appearance of neoplasms independently of extrinsic factors; multiple incidence of neoplasms affecting the same organ or system; multiple incidence of neoplasms affecting different organs or systems; varying degrees of resistance or susceptibility to neoplasms within the same family generation; symmetrical tumors in different members of the family, and the occurrence of symmetrical neoplasms in the same organ and part of the organ or its mirror image in identical twins. It seems to Warthin that the best interpretation of these facts rests on the assumption of at least four hereditary factors: the normal constitution resistant to blastoma; the pathologic blastoma constitution; the normal resistant organ or tissue make-up, and the pathologic organ predisposition to cancer. Each of these factors must be composite; no one is a simple unit factor in the mendelian sense. In some families the four factors appear to be inherited as genes. The individual who has a single case of cancer developing in two or three generations of his family has not great cause for worry. But the individual who has a family history of the multiple incidence of cancer in several generations should take heed.

Association of Cholecystitis with Cardiac Disorders.—Of 109 patients with chronic cholecystitis studied by Schwartz and Herman, 63.3 per cent had associated myocardial disease, of which 56.5 per cent were combined with obesity. Of the entire group, 52.2 per cent were obese; 68 per cent of the obese patients had heart disease. It is adduced, from data obtained in this study, that the infected gallbladder and obesity are equally responsible for the myocardial damage of patients with chronic cholecystitis.

Cessation of Auricular Paroxysmal Tachycardia by Use of Calcium.—A series of three cases of simple tachycardia is reported by Wolffe and Bellett with electrocardiograms in which the paroxysms were immediately terminated by the intravenous use of calcium. It is believed that this is a therapeutic measure which, while not successful in every instance, is well worth trying when other methods have failed and when the length of the attack is dangerously prolonged. There is some evidence that administration of calcium by mouth between attacks tends to lessen the number of paroxysms.

Annals of Surgery, Philadelphia

93: 3-480 (Jan.) 1931

International Contributions to Study of Cancer in Honor of Dr. James Ewing.

Archives of Dermatology and Syphilology, Chicago

23: 1-212 (Jan.) 1931

Lazarine Leprosy: Peculiar Monosymptomatic Form of Leprosy. V. Pardo-Castello, Havana, and G. M. Caballero, Matanzas, Cuba.—p. 1.
Pityriasis Lichenoides et Varioliformis Acuta (Habermann). F. E. Senear and E. A. Oliver, Chicago.—p. 12.
Id.: Variety of Parapsoriasis. P. Gross, New York.—p. 33.
Acne Conglobata. H. E. Michelson and P. K. Allen, Minneapolis.—p. 49.
Dermatitis of Eyelids Caused by Dionin: Development of Local Hypersensitiveness After Eleven Years' Use. C. L. Cummer, Cleveland.—p. 68.
*Intestinal Flora in Psoriasis. H. J. Schwartz, J. C. Torrey and J. F. Fraser, New York.—p. 70.
*Reactions of Skin Following Intradermal Injection of Arsphenamine Postarsphenamine Dermatitis. J. E. Moore, S. T. Woo, H. M. Robinson and L. N. Gay, Baltimore.—p. 74.
*Untoward Results from Use of Gold Compounds: Fatal Case. J. R. Driver, Cleveland, and J. N. Weller, Akron, Ohio.—p. 87.
Arsenic: Use in Dermatology. P. E. Bechet, New York.—p. 110.
*Nonspecific Therapy in Dermatology. C. S. Wright, Philadelphia.—p. 118.
Lecithin and Cholesterol Studies in Dermatophytosis. I. Rosen and F. Krasnow, New York.—p. 132.

Intestinal Flora in Psoriasis.—Schwartz et al. report that no evidence has yet been found that would seem to indicate any connection between the numbers and types of bacteria vegetating in the human intestine and the development of psoriasis.

Reactions of Skin to Intradermal Injection of Arsphenamine.—Intradermal tests with arsphenamine preparations have been carried out by Moore et al. in four groups of persons: (1) thirty-six normal controls; (2) sixty-one patients with syphilis, most of whom had received therapeutic injections of arsphenamine without the occurrence of reactions of the dermatitis group; (3) nineteen patients with allergic instability (hay-fever), and (4) thirty-five patients who had suffered from postarsphenamine dermatitis. In about 60 per cent of normal persons a delayed reaction, "flare-up," develops at the site of intradermal injection after an incubation period of from three to four weeks. This has been interpreted as evidence of sensitization of the skin to arsphenamine. In a smaller proportion (44 per cent) of syphilitic patients under treatment, similar reactions develop which are less severe and extensive and which appear earlier (in from two to three weeks) than in normal controls. This reduction in incidence and severity and the shortening of the incubation period are attributed to the desensitizing effect of the previous or simultaneous intravenous administration of arsphenamine. In all except one of nineteen patients with hay-fever tested, much more violent and severe reactions developed than in normal or syphilitic controls, and these reactions appeared earlier (in from one to two weeks) than in either of the control groups. This is interpreted not as sensitization to arsphenamine but as probably due to local auto-inoculation of the sensitized patient with his own antigen (pollen) in an inflamed area (Auer's phenomenon). In thirty-five patients with postarsphenamine dermatitis, strongly positive reactions, appearing much earlier (in from two to seven days) than in any of the other groups, occurred in 70 per cent of those who had had the exfoliative type of dermatitis and in only 11 per cent of those who had had other types of rashes. A negative skin test in postarsphenamine dermatitis does not indicate the absence of hypersensitiveness to arsphenamine, since negatively reacting patients had often had repeated generalized rashes on attempts to administer therapeutic doses of these drugs.

Results from Use of Gold Compounds.—Report is made by Driver and Weller of a death following the administration of 25 mg. and 50 mg. of sodium gold thiosulphate four days apart to a woman with lupus erythematosus. A generalized erythema

developed with fever, prostration, hemorrhages from the vagina, total loss of hearing and icterus. It is believed that death resulted from acute yellow atrophy of the liver due to idiosyncrasy to gold.

Nonspecific Therapy in Dermatology.—Wright asserts that nonspecific therapy is of definite value in the treatment of a number of diseases of the skin. Autohemotherapy may prove of distinct value in the treatment of psoriasis, as an adjunct to local therapy, and in lessening the activity of the eruption; it is often a distinct aid in the treatment of patients with chronic urticaria. Milk preparations are of value for the immediate treatment of furunculosis and carbunculosis. Pruritus of idiopathic origin or severe pruritus accompanying a dermatosis may in some instances be quickly and effectively relieved by the intramuscular injection of a milk protein. In eczema, acne and psoriasis, milk preparations have proved disappointing. Nonspecific vaccine therapy is of some value in the treatment of psoriasis. The use of a *Streptococcus fecalis-Bacillus coli* vaccine is recommended for office use when a mild nonspecific action is desired in psoriasis. Injections of turpentine have proved of value in the treatment of trichophyton infections and certain bacterial infections.

Archives of Internal Medicine, Chicago

47: 1-166 (Jan.) 1931

*Mild Forms of Coronary Thrombosis. R. L. Levy, New York.—p. 1.
Structure of Normal Lung: Surface Stereomicroscopic Study. M. Joannides, Chicago.—p. 19.
Mechanism of Pneumonia. M. Joannides and F. H. Steinman, Chicago.—p. 24.
*Erythema Infectiosum: Epidemic in Branford, Conn. A. L. Lawton and R. E. Smith, New Haven, Conn.—p. 28.
*Leukemic Changes of Gastro-Intestinal Tract. W. S. Boikan, Chicago.—p. 42.
Critique of Present Methods for Study of Gastric Acidity. M. J. Matzner and I. Gray, Brooklyn.—p. 58.
Electrocardiogram in Obesity. S. H. Proger, Atlanta.—p. 64.
*Hypochromic Anemia with Achlorhydria. T. R. Waugh, Montreal.—p. 71.
Cholesterol Partition of Blood Plasma in Parenchymatous Diseases of Liver. E. Z. Epstein, New York.—p. 82.
*Polycythemia Vera and Chronic Pulmonary Disease. N. W. Barker, Rochester, Minn.—p. 94.
Chemistry and Metabolism in Experimental Yellow Fever in Macacus Rhesus Monkeys: III. Blood Sugar and Liver Glycogen. A. M. Wakeman and C. A. Morrell, New Haven, Conn.—p. 104.
*Potassium Content of Hearts of Persons Dying from Edematous and Nonedematous Conditions. L. C. Scott, New Orleans.—p. 116.
Blood Lipoids in Nephrosis and Chronic Nephritis with Edema. L. Lichtenstein and E. Z. Epstein, New York.—p. 122.
*Terminal Hypoglycemia. E. G. Schmidt, Baltimore.—p. 128.
*Liver Extract for Pernicious Anemia: Blood Changes During First Month: One Hundred and One Cases. L. G. Zerfas, Indianapolis.—p. 135.
Gastric and Duodenal Ulcer in Black People of Abyssinia. S. Bergsma, Addis Ababa, Abyssinia.—p. 144.
Gastro-Intestinal Myiasis: Case. A. F. Brand, Fayetteville, N. Y.—p. 149.
*Primary Bacillus Pyocyaneus Meningitis: Case with Recovery. W. T. Vaughan, R. Beck and T. S. Shelton, Richmond, Va.—p. 155.

Coronary Thrombosis.—Eight cases are reported by Levy as exemplifying mild forms of coronary thrombosis. The records of these patients appear to define a distinct clinical group, characterized chiefly by the relative youth of the patients (all being less than 50 years of age) and the rapid rate of recovery, both subjective and objective. A critical analysis is made of the various features, and some of these are discussed. Because the clinical picture is at times atypical, it is believed that this condition frequently is not recognized. Although a rapid rate of recovery tends to indicate a favorable outcome of the immediate attack, accurate prognosis as to the liability to recurrence and life expectancy is extremely difficult.

Erythema Infectiosum.—An epidemic of ninety-seven cases of erythema infectiosum occurring in Branford, Conn., is reported by Lawton and Smith. Experimental work, the results of which were entirely negative, is cited. The epidemic in Branford was similar in all respects to previously reported epidemics of erythema infectiosum. The characteristic features of the disease are the rash, its distribution, the evanescence, the relatively long duration and the absence of other symptoms. It seems to be a distinct clinical entity, and all evidence points to its being transmitted from person to person, although the exact mode of transmission and the etiology of the disease are unknown.

Leukemic Changes of Gastro-Intestinal Tract.—Fourteen cases of leukemia, eleven myelogenous and three lymphatic, were studied by Boikan with reference to the gastro-intestinal involvement. Nonspecific changes were found in nine cases of acute myelogenous leukemia, consisting of hemorrhages, ulceration and secondary inflammatory processes. In two cases (acute myelogenous leukemia) there were no changes. Specific changes were found in two cases of acute myelosis, consisting of an infiltration of the appendix and an infiltration of Peyer's patches, respectively. Specific changes were found in one case of chronic lymphatic leukemia. The stomach was enormously enlarged, with huge convolutions on the inner surface, giving it a brain-like appearance, and the intestines were beset with plaques and polypus-like infiltrations. In a review of the literature, another such case was not discovered. The case was found, however, to parallel exactly those described as aleukemic lymphadenosis or pseudoleukemia gastro-intestinalis. From these facts it is concluded that the aleukemic and leukocythemic leukemias are fundamentally identical. In further support of this conclusion a last case is described in which an aleukemic lymphadenosis terminated as an acute leukocythemic lymphadenosis.

Hypochromic Anemia with Achlorhydria.—This type of anemia, according to Waugh, is so readily confused with other hypochromic anemias that it often is not recognized. Many physicians are satisfied to rule out pernicious anemia carefully and then to rest content on a diagnosis of "secondary anemia" without further investigation or distinction. A smear is made, a blood count is done, no megalocytes are found, the color index is low, and at once all interest in the anemia disappears. This condition never reaches the severity of pernicious anemia and hence is more readily passed over. The patients do not look as sick as they really are, and one is greatly surprised to find the hemoglobin so low. They show so favorable a picture on physical examination, except for the anemia, and they complain so little except of fatigue, lassitude and perhaps palpitation on exertion that one is inclined to consider them hypochondriac. Moreover, although the anemia is persistent, it rarely, if ever, increases to a sufficient degree to cause the death of the patient. All of the author's cases have occurred in women, from 35 to 45 years of age, though occasional cases in younger and slightly older women occur. No case occurred in a woman after the menopause. Physical examination reveals comparatively few abnormal signs. The red blood cells are only moderately reduced in number, figures between 3,500,000 and 4,000,000 being most common. On the other hand, the hemoglobin is relatively low, ranging from 30 to 60 per cent. Consequently, the color index is often extremely low, and the hemoglobin concentration is markedly reduced. In typical cases there is a moderate leukopenia. The blood plates are somewhat reduced in number, though low figures suggesting an approaching hemorrhagic diathesis were not observed. Finally, the serum is inclined to be a rather pale yellow with a faint or moderate green tinge. To summarize, there is a marked low color index, i. e., hypochromic anemia, with evidence of deficient erythropoietic and leukopoietic myeloid activity. Moreover, the anemia is not hemolytic. The anemia in these cases is extraordinarily peristent. Following pregnancy there is apparently some improvement, but a marked anemia persists. The patients invariably complain that they dislike taking iron and that it does them no good. Arsenic possibly causes an improvement in the subjective symptoms but no appreciable alteration in the blood picture. These cases do not respond to liver therapy as do those of pernicious anemia. The benefit of transfusion is only temporary, and the blood rapidly falls to its previous level. In fact, the persistence of the anemia and its tendency to maintain a constant level for months in spite of all manner of therapy is one of the striking characteristics of the disease.

Polycythemia Vera and Chronic Pulmonary Disease.—Four cases of polycythemia and chronic pulmonary disease with blood volume comparable to that seen in polycythemia vera are reported by Barker. Treatment in these cases was by the administration of phenylhydrazine hydrochloride; there was a definite reduction in the blood volume with clinical subjective and objective improvement. Because of the high blood volume and a good response to treatment by destruction of blood, these cases are considered as polycythemia vera with associated or complicating pulmonary disease.

Potassium Content of Heart.—The results of analyses made by Scott of thirty-two hearts for potassium and sodium do not seem to indicate that there is on an average any appreciable difference in the amount of these elements in hearts from edematous and from nonedematous patients. The water content is practically the same for the two categories. There is considerable variation in the amount of potassium and sodium in hearts, regardless of whether the disease processes from which the patients died were or were not productive of edema. The percentage of sodium may be greater than that of potassium and vice versa without any apparent relation to disease. Demonstration of potassium in cardiac tissue indicates that the larger proportion of the salts is contained in the fluid bathing the muscle cells and that they are rather uniformly diffused throughout the protoplasm.

Terminal Hypoglycemia.—Blood chemistry determinations have been made by Schmidt before, at and one hour after death, on thirty-three nondiabetic patients dying in the hospital. Among these thirty-three unselected cases, twelve cases, or 36 per cent, showed low terminal blood plasma sugars, ranging from 28 to 75 mg. per hundred cubic centimeters at the moment of death. In a number of cases it was demonstrated that this pronounced and suggestive hypoglycemia existed before death as well as at death. Only a slight decrease was noted in the blood sugar during the hour immediately following death, although there were two noteworthy exceptions in which the sugar of the heart blood decreased from 154 to 50 mg. and from 166 to 32 mg. The blood urea frequently increased rapidly just prior to death, but little change took place after death. Frequently there was a terminal rise in amino-acid nitrogen, which continued to increase somewhat after death. The carbon dioxide combining power of the plasma decreased somewhat shortly after death, but the chlorides remained unchanged.

Liver Extract for Pernicious Enemia.—One hundred and one patients with typical pernicious anemia were treated by Zerfas with potent fractions of liver. Sixty-one of these patients were given adequate daily amounts of a standardized fraction of liver. The results obtained relative to the production of reticulocytes are in accord with those reported by Minot and his associates. The maximum number of reticulocytes produced at the peak of their increase was influenced by the level of the red blood cells before treatment was begun and by the daily amount of potent extract of liver ingested. In uncomplicated cases, the amount of extract (approximately 12 Gm.) derived from 300 Gm. of liver produced a slightly submaximal number of reticulocytes on the day of the peak; however, the number of red blood cells produced at the end of one month was essentially the same as that produced when larger daily amounts of extract (that derived from 400 to 1,000 Gm. of liver) were given. The average gain in red blood cells at the end of one month's treatment for the entire series of 101 patients bore an inverse relation to the level of the red blood cells before treatment was begun. In the patients whose red blood cell counts were below 3 million per cubic millimeter of blood before treatment, the count reached approximately a level of 3.5 million at the end of one month. The number of reticulocytes produced at the peak of their rise, combined with information relative to the rate of red blood cell production for the first month of treatment, seems a useful means of determining the potency of fractions of liver.

Bacillus Pyocyaneus Meningitis.—The case presented by Vaughan et al. is said to be of especial interest because of the following factors: (1) primary *Bacillus pyocyaneus* meningitis with minimal systemic and localizing symptoms and with no recognized portal of entry; presumably the infection entered through the lymphadenoid tissues of the upper part of the respiratory tract or through similar tissues of the digestive tract such as the Peyer's patches; (2) absence of the three recognizable etiologic factors found in other cases in the literature, namely, trauma to the brain or spine, lumbar puncture or *B. pyocyaneus* septicemia; (3) seemingly good therapeutic results from decompression; (4) evidence of the local character of the infection as seen in the development of agglutinins in the spinal fluid but not in the blood stream, and (5) rapid recovery in contrast to the two other general types of cases heretofore described: rapid, fatal progression, a long drawn out recrudescent illness, and evidence that even in *B. pyocaneus* meningitis one is dealing with an organism of relatively low invasiveness.

Archives of Otolaryngology, Chicago

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*Maldevelopments of Auricle, External Acoustic Meatus and Middle Ear: Microtia and Congenital Meatal Atresia. J. S. Fraser, Edinburgh, Scotland.—p. 1.
*Radical Mastoid Operation. J. M. Smith, New York.—p. 28.
*Are Tonsillar Recurrences Entirely Due to Faulty Operative Technic? N. Leshin and S. J. Pearlman, Chicago.—p. 37.
Tests of Hearing: Speech Interpretation Test. D. MacFarlan, Philadelphia.—p. 47.
*Subcutaneous Mixed Tumor of Face Not Associated with Salivary Glands. A. Brunschwig, Chicago.—p. 52.
Herpes Zoster Oticus: Case with Facial Paralysis. T. W. Buckingham, Bismarck, N. D.—p. 59.
*Roentgen Diagnosis of Disease at Base of Skull. R. Pomeranz, Newark, N. J.—p. 63.
*Chronic Effect of Epinephrine and Ephedrine on Nasal Mucosa. N. Fox, Chicago.—p. 73.
Calcium, Phosphorus and Cholesterol in Otosclerosis. E. P. Fowler, New York.—p. 77.
Cerebrospinal Rhinorrhea: Case of Eighteen Years' Duration. F. A. Plum, Honolulu, Hawaii.—p. 84.
Gradenigo's Syndrome: Anatomic Aspects. P. E. Meltzer, Boston.—p. 87.

Maldevelopments of Auricle, External Meatus and Middle Ear.—Fraser states that the condition of microtia and meatal atresia is not rare. It occurs more frequently in males than in females and more often on the right side than on the left. Unilateral cases are more common than bilateral. In rare instances the condition occurs in more than one member in a family. Facial paresis, maldevelopment of the mandible, facial hemiatrophy and other congenital deformities are not infrequently noted in association with microtia and meatal atresia. Hearing tests usually show the results obtained in lesions of the sound-conducting apparatus, but even in bilateral cases the human voice is, as a rule, heard well enough to allow the patient's speech to develop. Functional examination by means of the rotation tests shows, as a rule, that the vestibular apparatus is normal. Operation should be performed in unilateral cases only when otitis media and mastoiditis are present on the affected side. In other unilateral cases the improvement in hearing is not sufficient to justify operation. In bilateral cases, operation is called for only if the deafness is marked and if roentgenograms and functional examination show that the labyrinth is healthy.

Radical Mastoid Operation.—A review by Smith of the best surgical procedures advocated for relief from chronic aural suppuration during the last twenty years reveals the fact that in the early part of this period a large majority advised the radical operation. Later there was a gradual change with a progressive improvement in the sentiment toward the various modifications of the radical operation. The danger at present is that the pendulum may swing too far in that direction. During the whole period there was always the possibility of being misled by the overenthusiastic advocates of the operation, as well as by those who professed to believe that the radical operation is never indicated. The old adage that the point of safety lies somewhere between the two extremes applies here. The temporal bone shows a wide variation within its normal anatomic limits from the small infantile type with a complete absence of cells or mastoid cavity to the large pneumatic bone with an extensive cellular development and mastoid cavity. There must necessarily be a marked variation in the degree of bone destruction encountered in the different cases. There may be an extensive destruction of the drum membrane and ossicular chain with little or no involvement of the mastoid structures, or the reverse may be true with an extensive destruction in the mastoid and the ossicular chain intact. It is evident that a different type of operation is indicated in these cases. It will therefore be impossible to employ any one particular operation in all cases, and it becomes a question of adapting the operation to the disease. When there is little or no destruction of the ossicular chain, some otologists prefer to lower the posterior wall, allow the ossicles to remain and cut a flap. In these cases the author prefers to perform a complete simple mastoid operation, open the aditus wide, expose the incus, remove all the granulations possible and treat the wound as a simple operation without lowering the wall or cutting a flap. Occasionally he has purposely removed the incus and obtained a dry ear. When the malleus and incus require removal and the posterior wall of the canal is intact, he performs a new radical operation by completely exenterating the diseased structure in the mastoid and

middle ear without removing the wall of the canal. In this manner the cavity and flap of the radical operation are avoided and the hearing results are improved. For the extensive infections in which these modifications are not adequate, a complete radical operation should be performed. The radical operation has a definite place in surgical otology, one that can never be replaced. Its technic makes it possible to obtain the most complete exenteration of the diseased structures. There will always be certain cases which demand this operation; there will be others in which a less extensive operation will suffice. The fact seems to be definitely established that both the radical operation and some of the more conservative procedures have their selective indications. In many instances the absence of symptoms other than the foul-smelling discharge makes it impossible to determine the extent of the necrosis before operation; the best policy would seem to be to allow the degree of bone destruction in the individual case to dictate the type of operation and to be able to perform the one that seems to promise the best results.

Are Tonsillar Recurrences Entirely Due to Faulty Operative Technic?—Leshin and Pearlman call attention to extratonsillar tissues which often contain lymphoid tissue embedded in their layers and which are frequently neglected by many in routine tonsillectomy. Furthermore, following tonsillectomy in which the main tonsil mass is apparently completely removed, in those instances in which the plicae are well developed, sites for possible future lymphoid hypertrophy are still left in nearly 50 per cent of all cases. Whenever these plicae are well developed, and this applies particularly to the plica triangularis, they should be removed separately. There is no method of tonsillectomy that insures the patient positively against the future recurrence of lymphoid tissue at the site of operation. This statement is based on histologic evidence of the presence of lymphoid tissue surrounding the immediate tonsillar site and is confirmed from embryologic evidence that indicates that the tunica propria of the mucosa in this entire region contains lymphatic structures with marked tendency toward hypertrophy. Epithelization of the raw operative area occurs as the result of the surrounding mucosa, with its tunica propria, growing down into it and retaining in its new site the ability to form lymphoid structures. The occurrence of hypertrophy in some instances and its absence in others is due to constitutional and individual factors as yet not known.

Subcutaneous Mixed Tumor of Face not Associated with Salivary Glands.—Brunschwig reports a case of subcutaneous mixed tumor of the face. According to the literature, these are uncommon. Since macroscopic diagnosis is not possible, a routine microscopic examination of all subcutaneous nodules removed from the face at operation would, no doubt, reveal a much greater incidence of this condition. Mixed tumors are potentially malignant and when present should be treated as such by thorough excision and prophylactic irradiation of the site occupied by the neoplasm. Since, therefore, many apparently benign nodules about the face may be potentially malignant neoplasms, their removal is recommended on the slightest pretext.

Roentgen Diagnosis of Disease at Base of Skull.—For a general survey of the main structures at the base of the skull, Pomeranz considers two views necessary: one in the frontal direction and the other in the sagittal direction. The view taken in the frontal direction will, as a rule, disclose the changes of the sella, the general type of the skull and the thickness of the flat bones and their digital impressions. It sometimes occurs that the anterior clinoid processes are obscured by each other; then another view taken in a slightly (5 degrees) inclined position is necessary to separate them on the plate. The sagittal view should be obtained so that the central ray takes the direction of the German horizontal; i. e., the imaginary line connecting the upper walls of the external auditory canal with the lower orbital margin. The sagittal view may be taken in either the anteroposterior or the postero-anterior direction. In this view, if properly taken, one will see the pyramids in the lower third of the orbits, the foramen rotundum, small wings, large wings as a part of the orbital wall, superior orbital fissure, lamina papyracea, ethmoid bone and cells and often the sphenoid sinus. These two views will give a good general survey of the base of the skull. Of the numerous special views cited, three are particularly important: 1. The axial view of the middle fossa (Schüller), which should be taken in the submentobregmatic direction. If the patient cannot assume this position, this view can be taken in the opposite direction. In such a case the part of the middle fossa is obscured by the shadow of the mandible. In this view the main structures of the middle fossa are visualized: the foramina, apexes of the pyramids, sphenoid sinuses, carotid groove, clivus and base of the pterygoid processus (tumors of the nasopharynx). 2. The Stenvers view of the pyramis. The central ray is perpendicular to the longitudinal axis of the pyramis. This view gives a general survey of the pyramis and the outline and details about the inner ear; one can discern the semicircular lateral and superior canals, vestibulum, cochlea, internal meatus and apex of the pyramis. Often this view has to be supplemented by Schüller's and Mayer's view of the mastoid part and of the tympanum. Mayer's view is taken in such a manner that the central ray is parallel to the longitudinal axis of the pyramis aiming at the external auditory canal. It gives a good view of the tympanum, sigmoid sinus, antrum mastoideum and cells. Schüller's view is the routine lateral view of the pyramis. 3. The oblique view of the orbit by Rhese modified by Goalwin. This view visualizes the optic canal. It is of diagnostic value only in selected cases. All the views described are necessary for visualization of the base of the skull. For the sinuses, particularly the maxillary sinuses, the visualization of which was poor from the diagnostic standpoint, Mayer used the cranio-excentric view of Lilienfeld. This view projects the sinuses downward on the plate, partially distorting them. It has, however, the advantage that all the bony structures of the base of the skull (particularly the pyramids) which otherwise obscure the sinuses are projected downward. In the author's opinion, it is not advisable, for several reasons, to use the Bucky diaphragm in the diagnosis of disease of the skull. The structure of the bones is coarse in comparison with its appearance in plates taken without the Bucky diaphragm. With the diaphragm in the special positions that are so important for diagnosis, roentgenograms cannot be taken on account of the excessive angulation of the central ray to the grids. It is also not advisable to use large distances and large cones in this work. The large distances will make one's interpretation of the film much more difficult; with large cones, the roentgenograms will not be sharply defined owing to an excessive amount of secondary rays. The use of small cones is best. It is also important to study a film with a skull in one's hand, first acquainting oneself with the method of projection used in the individual view.

Effect of Epinephrine and Ephedrine on Nasal Mucosa.—Fox performed two series of experiments on rabbits to determine whether solutions of ephedrine and epinephrine, which are frequently prescribed over a long period in chronic nasal obstruction, are deleterious after long usage. He found that ephedrine hydrochloride in dilutions of 1:50, when sprayed daily over the mucous membrane of rabbits for three months, caused little injury, if any, to the tissues. Epinephrine chloride in dilutions of 1:1,000, when sprayed daily over the mucous membrane of rabbits for three months, caused considerable injury of these tissues.

Arch. of Physical Therapy, X-Ray, Radium, Chicago

12: 1-60 (Jan.) 1931.

Symposium: Tonsils: Clinical and Bacteriologic Examination of Faucial Tonsil. R. H. Fraser, C. E. Roderick, J. Williams and I. Maxson, Battle Creek, Mich.—p. 3.
Electrosterilization of Tonsils. W. L. Cahall, Utica, N. Y.—p. 8.
Evaluation of Electrosurgery of Tonsils. F. B. Balmer, Chicago.—p. 10.
Radium Treatment of Infected Tonsils. J. H. Vaughan, Amarillo, Texas.—p. 15.
Erysipelas. W. H. Ude, Minneapolis.—p. 16.
Postoperative Physical Aids in Otolaryngology. A. R. Hollender, Chicago.—p. 19.
Treatment of Laryngeal Tuberculosis. E. E. Glenn, Mount Vernon, Mo.—p. 23.
Radium in Dermatology. R. Fields, Washington, D. C.—p. 26.

Arkansas Medical Society Journal, Little Rock.

27: 161-175 (Jan.) 1931

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Hysteria. T. Cothern, Jonesboro.—p. 168.
Two Cases of Streptococcic Infection of Tonsils with Unusual Course and Termination. B. H. Hawkins, Mena.—p. 169.

Canadian Public Health Journal, Toronto

22: 1-54 (Jan.) 1931

Control of Gonorrhea in Women. W. W. Lailey, Toronto.—p. 1.
Amentia: Economic, Educational, Social and Public Health Problem. B. T. McGhie, Toronto.—p. 5.
Lactose Broth and Lactose Bile as Enrichment Media for Detection of Pollution in Farm Well Waters. A. G. Lochhead and D. G. Hewer, Ottawa, Ont.—p. 10.
What is Stillbirth? E. Gagnon, Montreal.—p. 16.
Public Health Nurse in Control of Tuberculosis. R. E. Wodehouse, Ottawa, Ont.—p. 28.
Interpretation of Reactions Following Revaccination. N. E. McKinnon and R. D. Defries, Toronto.—p. 33.

Florida Medical Association Journal, Jacksonville

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Obstruction of Bowel. J. S. Turberville, Century.—p. 311.
Malaria Control. F. A. Brink, Jacksonville.—p. 314.
Purpose and Ideals of State Board of Health. H. M. Smith, Tampa.—p. 319.
Our Heritage. R. J. Holmes, Miami.—p. 320.
Methods of Transfusing Blood. J. E. Boyd and G. W. Richardson, Jacksonville.—p. 324.
Theory and Application of Schilling Blood Picture. W. C. McConnell, St. Petersburg.—p. 326.

Georgia Medical Association Journal, Atlanta

20: 1-48 (Jan.) 1931

Health Habits for Children. M. M. McCord, Rome.—p. 1.
Critical Period of Childhood. T. B. Gay, Atlanta.—p. 3.
Alimentary Anemia. W. W. Anderson, Atlanta.—p. 6.
Value of Graded or Multiple State Measures in Surgery. B. H. Clifton, Atlanta.—p. 12.
Diagnosis and Treatment of Ruptured Gastric and Duodenal Ulcers. H. H. Askew, Atlanta.—p. 14.
Diagnosis and Treatment of Thyroid Diseases. W. A. Coleman, Eastman.—p. 17.
Chronic Kidney Disease: Nephrosis. H. C. Atkinson, Macon.—p. 19.
Syphilis: Early Diagnosis and Treatment. W. A. Upchurch, Atlanta.—p. 23.
Postoperative Pulmonary Embolism. J. D. Martin, Jr., Atlanta.—p. 26.
Throat Infection and Abdominal Pain. W. L. Wilkinson, Bainbridge.—p. 27.
Principles in Disease Prevention. J. D. Applewhite, Macon.—p. 28.
Postural Drainage as Applied in Abortion and Obstetric Cases. N. W. Baird, Atlanta.—p. 31.

Iowa State Medical Society Journal, Des Moines

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Care of Indigent Sick by Medical Society Contract. R. L. Parker, Des Moines.—p. 15.
Functional Disorders of Heart. F. A. Willius, Rochester, Minn.—p. 21.
Birth Injuries. C. E. Hill, Council Bluffs.—p. 24.
Diabetes Mellitus: Case Showing High Blood Sugar, Insulin Resistance, and Effect of Infection upon Carbohydrate Tolerance. F. L. Dunn, Omaha.—p. 26.
Production of Proteose Toxic Fraction and Effect of Diverting Portal Circulation on Its Toxicity. J. T. McClintock, Iowa City.—p. 27.
Schilder's Disease (Periaxialis Encephalitis Diffusa): Living Case. M. L. Floyd, Iowa City.—p. 27.
Inaccuracy of Diagnosis of Tuberculosis of Bone, Joint, Bursae. J. E. Milgram, Iowa City.—p. 29.

Johns Hopkins Hospital Bulletin, Baltimore

48: 1-67 (Jan.) 1931

*Congenital Syphilis of Adrenal. G. L. Fite, Baltimore.—p. 1.
Cells Found in Tuberculous Tissues: Vital and Supravital Staining. E. H. Tompkins and R. S. Cunningham, Nashville, Tenn.—p. 8.
Di-Hydranol: Control of Intestinal Putrefaction in Man by Oral Administration of 2-4 Dihydroxyphenyl N-Heptane. V. Leonard and W. A. Feirer, Baltimore.—p. 25.
*Carcinoma of Stomach in Seventeen-Year Old Girl. A. Marble, Baltimore.—p. 39.

Congenital Syphilis of Suprarenal Gland.—The suprarenal glands from some 250 cases of congenital syphilis were examined by Fite. In only about 40 of these was there any abnormality whatever of the cellular structure of the gland to be observed, but some of the latter showed most striking changes attributable to syphilis. About half of the cases have been in still-born infants. Most of the other subjects had died in the first month or two of life, and the oldest had died at 7 months of age. In none of these 250 cases, nor in some 150 others which defied microscopy on account of poor preservation, were any macroscopic gummas of the suprarenal gland seen.

Carcinoma of Stomach in Seventeen-Year-Old Girl.—The patient whose case is reported by Marble was a girl aged 17 when first seen. The total duration of the disease from the onset of symptoms was about thirty-three months; the length of life after partial gastrectomy was twenty-two months.

Journal of Bone and Joint Surgery, Boston

13: 1-222 (Jan.) 1931

*Fixed Paralytic Obliquity of Pelvis. L. Mayer, New York.—p. 1.
*Low Back Pain: 525 Cases of Sacro-Iliac and Sacrolumbar Sprain. L. J. Miltner, Peiping, China, and C. S. Lowendorf, Iowa City.—p. 16.
Dislocation of Femur upon Acetabular Notch in a Pre-Roman Briton. M. F. Ashley-Montagu, London.—p. 29.
Modified Bifurcation Operation for Treatment of Painful Congenital Dislocation of Hip. R. Massart, Paris.—p. 33.
*Spondylolisthesis. H. W. Meyerding, Rochester, Minn.—p. 39.
Correction of Paralytic Genu Recurvatum. A. B. Gill, Philadelphia.—p. 49.
Correction of Drop Foot by Posterior Arthrodesis. A. Contargyris, Athens, Greece.—p. 54.
*Blood Serum Calcium in Relation to Healing of Fractures. K. Speed, Chicago.—p. 58.
*Influence of Alterations in Circulation on Repair of Bone. H. E. Pearse, Jr., and J. J. Morton, Rochester, N. Y.—p. 68.
Diagnosis, Pathology and Treatment of Fractures of Os Calcis. L. Böhler, Vienna, Austria.—p. 75.
Stenosing Tendovaginitis at Radial Styloid Process. P. Hoffman, St. Louis.—p. 89.
*Scoliosis Treated by Fusion Operation. R. A. Hibbs, J. C. Risser and A. B. Ferguson, New York.—p. 91.
Importance of Capsule Attachments in Reduction of Congenital Dislocations of Hip. F. C. Kidner, Detroit.—p. 104.
*Peg Leg Cast. W. P. Blount, Milwaukee.—p. 107.
Modified Loop Operation for Relief of Paralytic Equinovalgus. A. Whitman, New York.—p. 122.
Macrophage in Absorption from Synovial Cavity. E. H. Rynearson, Rochester, Minn.—p. 127.
Ambulatory Treatment of Fractures of Lower Extremity. R. S. Perkins and J. P. Mulhern, Worcester, Mass.—p. 138.
Modified Bone Block (Campbell) of Ankle for Paralytic Drop Foot. L. C. Wagner, New York.—p. 142.
Tumors of Nerve Sheaths of Extremities: Neurogenic Sarcomas. E. M. Bick, New York.—p. 149.
Complete Absence of Both Legs—Congenital. G. V. Foster, Pittsburgh.—p. 154.
Tuberculous Tenosynovitis of Palmar Synovial Bursa: "Compound Palmar Ganglion." A. Gillies, Wellington, New Zealand.—p. 156.
Continued Growth After Loss of Bony Epiphysis. C. B. Bennett, Berkeley, Calif.—p. 158.
*Supination Sign. R. M. Yergason, Hartford, Conn.—p. 160.
Neurotrophic Disturbances of Hand Associated with a Bite of Cat or Colles' Fracture. H. Turner, Leningrad.—p. 161.
Measuring Length of Lower Extremities: New Method. E. P. Quain, Bismarck, N. D.—p. 169.
Bone Lengthening Apparatus. B. H. Moore, Chicago.—p. 170.
Derotating Chair for Treatment of Scoliosis. C. A. Ryan, Vancouver, B. C.—p. 172.
"Sam Browne" Belt for Rib Fractures. R. V. Funston, Detroit.—p. 174.
Attachment to Hawley Table for Fixation of Lower Extremities. H. E Conwell, Fairfield, Ala.—p. 175.
Corrective Support in Scoliosis. C. W. Peabody, Detroit.—p. 177.

Fixed Paralytic Obliquity of Pelvis.—Fixed obliquity of the pelvis, as contrasted with obliquity due to actual shortening of a leg, Mayer says, is caused by a contracture of the structures connecting the pelvis and the thigh or the pelvis and the spine. It is characterized by the fact that, when both legs are held parallel to the median line of the body, it is impossible to square the pelvis, even when the patient is in the recumbent position. Its practical significance is due to the apparent difference in the length of the legs which it causes. Five types may be distinguished: (1) due to contracture of the abductors; (2) due to contracture of the adductors; (3) due to contracture of both abductors and adductors; (4) due to contracture of spinal and abdominal muscles, and of the quadratus lumborum; (5) combinations of groups 1, 2 or 3 with group 4. The deformity can be corrected in the early cases by a push-and-pull apparatus; in the more advanced cases by suitable division of the contracted structures, coupled with stabilizing procedures to prevent recurrence of the deformity.

Low Back Pain.—Analysis of statistics made by Miltner and Lowendorf show that the causes for low back pain in order of relative importance are: (1) arthritis (1,350 cases); (2) sacro-iliac, sacrolumbar and combined sprains (525 cases); (3) muscle strain (100 cases); (4) lumbar myositis (25 cases); (5) other unusual conditions, as spondylolisthesis, fractures of the transverse processes, fractures of the articular facets, undiagnosed fractures of the vertebral bodies, and Kümmell's kyphosis (50 cases). The study is concerned chiefly with low back pain due to sacro-iliac, sacrolumbar or combined sacro-iliac and sacrolumbar sprain (525 cases). In well over 50 per cent of the cases, symptoms persisted into the chronic stage. Especially in the postural and occupational groups were the symptoms found to continue over a period of years. Eight cases (1.5 per cent) had a definite psychoneurosis which was entirely

responsible for the pain. Certain symptoms, such as the radiation of the pain and the posture assumed, seemed to bear a definite relation to the type of sprain. The sacro-iliac cases were more apt to have sciatic radiation (64.1 per cent as compared with the sacrolumbar cases, 21.9 per cent). Radiation into the areas of the lumbar nerves was present in 7 per cent of the sacro-iliac cases and in 3.4 per cent of the sacrolumbar sprains. Pain in the course of the superior gluteal nerve was present in 6.1 per cent of the sacro-iliac and in 2.6 per cent of the sacrolumbar cases. Concerning the posture assumed by the patient, the unilateral sacro-iliac case frequently showed a contralateral tilt or position of relief (24 per cent). A smaller proportion of unilateral sacro-iliac cases showed a list to the same side as the sprain (homolateral, 8 per cent). In explanation of the contralateral list, the patient leans to the opposite side to relieve the strain on the affected joint. Homolateral list is usually seen when there is an associated sciatica on the same side as the pain. Trauma, posture and occupational factors are the most important considerations in the etiology. In the chronic cases, i. e., those in which the symptoms persist over six months, the differentiation from chronic arthritis becomes very difficult. The differential diagnosis between sacro-iliac and sacrolumbar sprain is based on: (*a*) local points of tenderness which are anatomically separate; (*b*) localization of the pain (subjective); (*c*) the use of special tests, as the Laguere, Goldthwait and Gaenslen tests, straight leg raising and forcible compression of the iliac crests. Roentgen observations are not particularly important in the differential diagnosis and can be used only as confirmatory evidence after the diagnosis is made by the history and the physical examination. The essence of the treatment in the acute cases is complete and sufficient rest. Supports, belts, casts, braces, recumbency and traction may be used in the chronic cases. Physical therapy is recommended for all cases. Manipulation of the spine and sciatic stretching give good results in selected cases. In chronic persistent cases of lumbosacral and sacro-iliac pain, operation is advised.

Spondylolisthesis.—Data presented by Meyerding do not bear out observations by others that spondylolisthesis is more common in females; about 62 per cent of the patients in his series were men. Trauma appears to be a significant factor in the etiology, although the frequency of congenital defects and the apparent instability of the lumbosacral joint are additional factors. About 38 per cent of the patients ascribed the cause to trauma. Symptoms are mainly backache, which comes on either gradually or suddenly; if suddenly, severe trauma is usually associated. The absence of symptoms with the patient at rest, and aggravation of pain on exertion, are characteristic. Patients are treated by casts, braces, corsets, or fusion of the third, fourth and fifth lumbar vertebrae and the upper part of the sacrum.

Blood Serum Calcium: Healing of Fractures.—The results of several hundred blood determinations made by Speed on fracture patients show that immediately after fracture the blood phosphorus is low; the blood calcium is normal; the average admission calcium-phosphorus product is within normal limits, from 36 to 40; within twenty-four hours after any major fracture the blood serum phosphorus content rises and remains high, coming down slowly, possibly varying with the period of disability, from three to five weeks. Increased muscular exercise may hasten this; the blood serum calcium content remains about stationary; diet has little or no effect on either calcium or phosphorus content of the peripheral blood; after any operative procedure there is an almost immediate rise in blood serum phosphorus followed by a rapid fall to normal. Experimental work done on dogs showed that in healthy dogs reduction of blood serum calcium and phosphorus or elevation of blood serum calcium and reduction of phosphorus have no consistently demonstrable effect on the healing of experimental fracture, even after a considerable period of time or with a reduction which gives a numerical product of less than 30, amounts of each per hundred cubic centimeters of blood serum being taken. After thyroparathyroidectomy, however, with resulting lowering of blood serum calcium and raising of blood serum phosphorus, even when the product does not get anywhere near as low as 30, there is great delay in bony union after experimental fracture in dogs. Taking average human beings suffering fracture, it seems then impossible to prognosticate delayed union or nonunion after fracture by any estimation of blood serum phosphorus-calcium content or their numerical product.

Influence of Alterations in Circulation on Repair of Bone.—Pearse and Morton have shown previously that blocking the deep veins to produce venous stasis at the site of healing results in an increased callus formation and accelerated bone repair. This is a useful procedure in treating delayed union of fractures. Obstruction of the lesser saphenous vein has no influence on the healing of the fibula. Blocking the arterial circulation by ligation of the main trunk has no effect because of the rapid development of collateral circulation. When the main artery and its branches are removed there is delay in bone repair, but healing eventually takes place. Removal of the lumbar sympathetic trunk and ganglions makes little change in the process of bone repair in the extremity.

Scoliosis Treated by the Fusion Operation.—Study of the end results in 360 cases leads Hibbs et al. to the conclusion that spine fusion is indicated in the treatment of scoliosis: (*a*) to prevent increase of deformity in the progressing scoliotic; (*b*) to maintain a previously gained correction; (*c*) to relieve pain. Spine fusion will maintain a correction of, and prevent increase in, a progressive lateral curvature. To accomplish this, constant support of the correction should be applied for from six to twelve months after operation. In order not to lose preoperative correction, the operation is performed through a posterior fenestration of the corrective cast. The area of fusion should be correctly selected, identified at operation, and adequate in length. The best form of correction of lateral curvature in their hands is a combination of head and pelvic traction with complete lateral bend. This is accomplished by the use of an anteroposterior hinge turnbuckle jacket. The increase of lateral curvature is closely associated with the skeletal of the spine.

Peg Leg Cast.—The peg leg cast is recommended by Blount for the ambulatory management of many hip abnormalities in children. It is desirable when simple fixation in abduction is sought, and it has been used to advantage postoperatively. In the treatment of chronic hip infections with shortening and vicious adduction, it is the method of choice for the correction of position and immobilization of the hip. It is specifically indicated during the active stages of coxa plana and coxa vara.

Supination Sign.—Yergason states that if the elbow is flexed to 90 degrees, the forearm being pronated, and the examining surgeon holds the patient's wrist so as to resist supination and then directs that active supination be made against his resistance, pain definitely localized in the bicipital groove indicates a condition of wear and tear of the long head of the biceps, or synovitis of its tendon sheath. The sign will be found negative in cases of partial or complete rupture of the supraspinatus tendon. This sign has been found useful in cases of shoulder injury.

Journal of Preventive Medicine, Baltimore

5: 1-80 (Jan.) 1931

Ultraviolet in Solar Radiation: I. Observations in Honolulu; Measurement by Oxalic-Acid Method. L. S. Godfrey, Honolulu.—p. 1.
Id.: II. Comparison at Different Localities Near Pacific. N. P. Larsen and L. S. Godfrey, Honolulu.—p. 25.
Acquired Immunity in Avian Malaria: III. Cellular Reactions in Infection and Superinfection. P. R. Cannon and W. H. Taliaferro, Chicago.—p. 37.
*Complement Fixation Tests with Yellow Fever Antigens. M. Frobisher, Jr., Bahia, Brazil.—p. 65.

Complement Fixation Tests with Yellow Fever Antigens.—The complement fixation test for yellow fever as performed by Frobisher has given about 87 per cent correct reactions with serum from 159 human beings and 175 monkeys. It is believed that, in view of difficulties in clinical interpretation and the natural immunity of monkeys, the figures expressing the accuracy of the test should actually be about 90 per cent. The complement fixation tests in which yellow fever antigens are used appear to be highly specific for yellow fever. There is no good evidence of undue interference with the test by other diseases, nor does there seem to be any good reason for such interference. However, it is possible that the presence of certain diseases, especially syphilis, may sometimes cause falsely positive reactions. Complement-fixing bodies appear to reach a maximum concentration in the blood of monkeys after the lapse

of from thirty to forty days. They seem to remain in the blood stream for periods varying from a few months to more than a year. In tests of monkeys for immunity to yellow fever it is believed that more reliable results will be obtained if the serum is not drawn until after thirty days following infection. The same probably is true also of human beings. Experiments have confirmed the observation of Davis that previously actively immunized monkeys in which the titer of complement-fixing bodies has declined to a vanishing point because of age will respond to second injections of virus with a production of complement-fixing bodies in the absence of fever. It is suggested that this may indicate one of three possibilities: (1) an obscure second infection which does not manifest itself clinically; (2) an allergic reaction; (3) the development of complement-fixing bodies as a result of the presence of the virus as a foreign protein, in which case the complement-fixing bodies might be distinct from the protective bodies.

New York State Journal of Medicine, New York

31: 65-130 (Jan. 15) 1931

Dermatology in Relation to Metabolic Disturbances. W. J. Highman, New York.—p. 65.
So-Called Jamaica Ginger Paralysis: Case. G. Wilson, Philadelphia.—p. 70.
Postoperative Emesis. J. C. Brady, Buffalo.—p. 72.
Postoperative Pain. J. Y. Cohen, Buffalo.—p. 73.
Postoperative Thirst. A. H. Noehren, Buffalo.—p. 73.
Postoperative Tympanites. A. W. Hengerer, Buffalo.—p. 74.
Postoperative Fear. J. Richter, Buffalo.—p. 74.
Postoperative Constipation. D. C. McKenney, Buffalo.—p. 76.
Postoperative Embolism. E. P. Lothrop, Buffalo.—p. 76.
Postoperative Ileus. J. Brennan, Buffalo.—p. 77.
Postoperative Peritonitis. M. Clinton, Buffalo.—p. 78.
Postoperative Secondary Infections. A. H. Clark, Buffalo.—p. 79.
Postoperative Hemorrhage. W. L. Machemer, Buffalo.—p. 79.
Postoperative Abdominal Auscultation. J. E. King, Buffalo.—p. 80.
Testing Hearing Among School Children. E. A. Pratt, Albany.—p. 81.
Leukosarcoma with Mediastinal Tumor. B. L. Zohman, Brooklyn.—p. 83.
Clinical Significance of Abdominal Pain in Children. E. J. Wynkoop, Syracuse.—p. 86.
Influence of Nutrition upon Respiratory Infections of Infancy. S. W. Clausen, Rochester.—p. 88.
Physical Therapy in General Practice. C. E. Anderson, Elmira.—p. 93.

Public Health Reports, Washington, D. C.

46: 149-205 (Jan. 23) 1931

*Incidence of Influenza Among Persons of Different Economic Status During Epidemic of 1918. E. Sydenstricker.—p. 154.

Influenza Among Persons of Different Economic Status During Epidemic of 1918.—Sydenstricker states that perhaps no observation during the great influenza epidemic of 1918-1919 was more common than the familiar comment that "the flu hit the rich and the poor alike." Apparently there was ample ground for a belief in the impartiality of the disease. Its widespread prevalence throughout the country, the frequency with which households in every social class were attacked, and the fact that prominent persons in every community were struck down, were among the outstanding, undeniable experiences in the epidemic. A certain consolation seemed to be afforded by the thought that the pestilence was democratic, even in so dreadful a sense, in its behavior. Like many conclusions based on general impressions, this observation was true only in part. Epidemic influenza undoubtedly was prevalent among all classes of persons and its mortality toll was levied from the wealthy as well as from the poor. But when the generalization was subjected to the closer analysis afforded by actual records of influenza incidence in 1918 in enumerated populations, the interesting indication appeared that there were marked and consistent differences in its incidence—with respect both to morbidity and to mortality—among persons of different economic status. An association between the incidence of epidemic influenza and economic condition was manifested. Apparently the lower the economic level, the higher was the attack rate. This relationship was found to persist even after allowance had been made for the influence of the factors of color, sex and age and certain other conditions.

Rhode Island Medical Journal, Providence

14: 1-16 (Jan.) 1931

Pituitary and Some Features of Tumors in Pituitary Region. H. C. Messinger, Providence.—p. 1.
Westerly's Diphtheria Record. S. C. Webster, Westerly.—p. 5.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

1: 125-164 (Jan. 24) 1931

*Laboratory and Hospital Infections with Yellow Fever in England. G. C. Low and N. H. Fairley.—p. 125.
*Malignant Disease of Lung. A. T. Edwards.—p. 129.
Cataract Operation in Extreme Old Age. R. H. Elliot.—p. 132.
*Hydatid Disease in England. J. F. Brailsford.—p. 133.
*Meinicke Clarification Reaction. D. Prentice.—p. 136.
*Ovarian Transplantation. J. H. Hannan.—p. 137.

Infections with Yellow Fever in England.—Three cases of direct infection with a Brazilian strain of yellow fever are recorded in laboratory workers in London by Low and Fairley. Two of the patients never came into contact, either directly or indirectly, with infected monkeys; they acquired the disease during routine hospital examinations, one in making blood slides and performing a white cell count, the other in doing routine biochemistry on a specimen of blood sent to the laboratory. The incubation period in both cases was ten days. Monkey inoculation showed that the blood of one patient was infective for at least eighty-nine and one-fourth hours after the onset of fever, despite the earlier injection of immune convalescent serum. The hitherto little appreciated danger of routine blood examination in cases of yellow fever during the first four days' illness, and probably also in the incubation period, is emphasized. It is strongly urged that in endemic areas when yellow fever is prevalent gloves should invariably be worn when taking blood, whether or not the case is suspected of being yellow fever.

Malignant Disease of Lung.—Edwards states that the onset of malignant disease of the lung is generally gradual and insidious but sometimes is initiated by a pyrexial attack commonly labeled influenza. For months, the history in others may disclose nothing except increasing lassitude without localizing symptoms. This symptom is later accompanied by dyspnea or nonproductive cough, both tending to become worse. The general appearance is often good, and weight may even be gained at this period. Hemoptysis occasionally occurs early. Irregular pyrexia may be an early symptom, but the temperature is rarely high until the later stages, when there is retention of secretions, or when necrosis has occurred in the center of the growth. A sudden attack of hemoptysis, associated with the expectoration of a quantity of purulent sputum, occurs occasionally in malignant disease and tends to confuse the condition with pulmonary abscess, especially as it is often preceded by a rise and succeeded by a fall of temperature. Pain is rare in the early stages but until the pleura or mediastinum is involved is never severe. Dysphagia occasionally results from the pressure of secondary deposits in mediastinal lymph nodes on the esophagus and hoarseness from pressure on, or involvement of, the left recurrent laryngeal nerve. The signs vary according to the type of the disease. In the bronchial growths the physical signs are those of pulmonary atelectasis, bronchial breathing of a blowing type, some dulness and often increase of voice sounds when the obstruction is incomplete, with dulness and weakness or absence of breath and voice sounds when complete bronchial obstruction is present. In the central or alveolar type, physical signs may be absent or may consist of localized dulness associated with weakness of breath and voice sounds. Extrapulmonary signs should also be sought for, such as enlarged supraclavicular lymph nodes and paralysis of the homolateral diaphragm due to involvement of the phrenic nerve. Evidence of venous obstruction, such as dilatation of the superficial veins of the chest and the veins of the upper limb and neck, is comparatively rare in pulmonary neoplasms. Effusions of the pleura are usually late and are often hemorrhagic. Bronchiectasis secondary to the obstruction results in a proportion of cases and its symptoms may mask those of the initial lesion. The fact that the signs are atypical of any of the common lung diseases should immediately suggest the possibility of malignant disease of the lung. Diagnosis may be confirmed by further investigations. These comprise roentgen examination, before and after pneumothorax, and the introduction of iodized poppy-seed oil into the bronchi, bronchoscopy, thoracoscopy and, finally, exploration of the thoracic cavity. In the past, when a diagnosis of malignant disease has been established, the tendency has been to abandon all

hope. As diagnosis is becoming possible at an earlier stage, some definite efforts should be made to deal with the problem of malignant disease of the lung in a more active way than by palliation of symptoms alone.

Hydatid Disease in England.—According to Brailsford, hydatid disease, which is not rare in England and which has a high mortality rate, could be eradicated by the burning of all hydatid cysts and the isolation of infected dogs until all adult parasites have been expelled and destroyed. This could be accomplished by: (*a*) Education of the public, particularly butchers and farmers, by suitably illustrated leaflets and posters for slaughterhouse premises. (*b*) Strict enforcement of the by-laws prohibiting dogs in slaughterhouse premises. (*c*) Compulsory notification of all cases of hydatid cysts and the destruction of the cysts by the sanitary authorities. (*d*) The inspection of farms on which the infested animals were reared and isolation treatment of all suspicious dogs.

Meinicke Clarification Reaction.—Prentice advocates simplification of the Meinicke clarification reaction by eliminating three of the tubes containing serum (A, B and C) and using only tube D. Its micromodification is rapid in operation, gives a high percentage of agreement with the Wassermann reaction, is very sensitive, and is easy both to perform and to read. As a routine test for syphilis in the patients in a mental hospital, it offers advantages over any other test. It has proved reliable.

Ovarian Transplantation.—Allowing that surgical technic may develop to such an extent that the blood supply and drainage can be assured by the anastomosis of the vessels of the transplanted ovary to the vessels of the bed in which the transplant rests, Hannan does not believe that there is any hope of being able to deal effectively with the lymphatic supply and drainage. With regard to the nerve supply, even if it were possible to anastomose the nerve supply of the transplant to the nerve supply of the bed, regeneration of the anastomosed nerves would take place only a considerable time after trophic changes had occurred in the transplant. He therefore considers that the transplantation of a compound gland, such as the ovary, is of no value, since its physiologic activity cannot be maintained. Moreover, a consideration of the anatomy and physiology of a compound gland such as the ovary, and of modern surgical research on compound glands in general, affords no prospect of successful ovarian transplantation in the future.

Indian Journal of Medical Research, Calcutta

18: 1-436 (Dec.) 1930

*Parasitology of Malaria. R. Knowles, R. S. White and B. M. Das Gupta.—p. 1.

Parasitology of Malaria.—According to Knowles et al. the distribution of malaria in general throughout the world is limited by the summer mean isotherms of 60 F. The distribution of *Plasmodium falciparum* throughout the world is limited by the summer mean isotherms of 70 F. It is shown that in Australia the malaria parasites appear to have only recently gained a footing and to retain still their northern hemisphere rhythm. They may be expected to extend their distribution over this continent unless artificially checked. The distribution of *Plasmodium malariae* throughout the world suggests that this is a dying species with existing foci at the Burma-Yunnan frontier, the relics of Gondwanaland, and the Caucasus. The relative proportion of the three species within the area bounded by the 70 F. summer isotherm should theoretically be *Plasmodium vivax* 39 per cent, *P. malariae* 18 per cent and *P. falciparum* 43 per cent. The actual proportions were quite different, being *P. vivax* 43 per cent, *P. malariae* 8 per cent, and *P. falciparum* 49 per cent. From this it is concluded that the factors governing the relative distribution of the three species are not yet at all understood. Mixed infections constitute about 3.7 per cent of the general malaria of the world and are distributed as follows: *P. vivax* plus *P. malariae*, 9 per cent; *P. vivax* plus *P. falciparum*, 79 per cent; *P. malariae* plus *P. falciparum*, 10 per cent; *P. vivax* plus *P. malariae* plus *P. falciparum*, 2 per cent. The relative gametocyte output of the three species is for *P. vivax* 21 per cent, *P. malariae* 45 per cent, and *P. falciparum* 19 per cent. Great variations are found especially in the case of *P. falciparum*. The conclusion of Sinton that the maximum output of gametocytes by *P. falciparum* occurs after the close of the transmission season is confirmed. A preliminary study of untreated cases of malaria by enumerative and cultural methods leads to the belief that usually malignant tertian malaria does not persist in an individual in the absence of repeated fresh injections of sporozoites. The development of crescents is not associated (in culture) with an increase in the acidity of the environment. Growth and development of both schizonts and gametocytes of all three species in culture is inhibited below a p_H of 6.0. Given a competent observer, examination of 100 fields of a thin film plus a reasonably careful examination of one thick film will enable a positive diagnosis to be made in 95 per cent of all cases of developed malaria but will discover only 67 per cent of the cases of mixed infection. However highly trained the observer, the authors' experiments show that it is utterly impossible to make a species diagnosis from the examination of a single ring-trophozoite form. They also show that a 95 per cent agreement in diagnosis can be expected from five minutes' examination of a thin film by recognized experts. From this it is inferred that the data used can generally be accepted as representing the actual facts as at present known with regard to the distribution of malaria species throughout the world.

South Africa Medical Assn. Journal, Cape Town

5: 1-32 (Jan. 10) 1931

Periodic Health Examinations. J. P. MacClaren.—p. 3.
Diseases of Myocardium. H. L. Heimann.—p. 8.
Dissociation and Somnambulism. B. J. F. Laubscher.—p. 12.
Comparison of Action of Plasmochin and Quinine on Uterus. D. Epstein. —p. 15.
Symptoms and Diagnosis of Hyperpiesia and Resulting Arteriosclerosis. O. K. Williamson.—p. 16.
Combined Treatment of Leprosy. G. H. Wildish and D. G. Stoute.—p. 21.
Radical Mastoid Operation on Patient with Latent Malaria. H. Levit. —p. 22.
Delayed Toxic Reaction Following Antimony Therapy. P. Hack.—p. 22.

Tubercle, London

12: 193-240 (Feb.) 1931

Tuberculization and Tuberculosis in Children Under Urban Conditions: "Contacts." R. J. Matthews.—p. 193.
*Gelatinothorax: Medium for Intrapleural Injection. R. A. Hunter.—p. 204.
Epidemiology of Tuberculosis of Negroes. E. L. Opie.—p. 207.
*Bacillus Calmette Guérin Strain of Tubercle Bacillus: Effect "in Vitro" of Environment on Virulence of B C G. K. T. Sasno and E. M. Mediar.—p. 214.

Gelatinothorax.—Because of unsatisfactory results obtained with intrapleural injections of oil, Hunter sought for a substitute that would possess compressive and antiseptic properties. A medium was prepared the basis of which is gelatin with acriflavine hydrochloride as the antiseptic. The fundamental principle is that the gelatin solution must not solidify in the cavity when injected, and this principle is observed by the percentage of gelatin employed and by superheating, so that the solidification properties of the medium may be impaired, if not entirely, to a degree. It was found that a 5 per cent gelatin solution met requirements, and this was tested by incubating at 30 C. for forty-eight hours, the solution remaining liquid at this temperature, giving a margin of at least 7 degrees centigrade. This gelatin is not the nutrient gelatin employed for the growth of bacteria, but ordinary sheet gelatin dissolved in physiologic solution of sodium chloride. The dilution of acriflavine employed is 1:2,000, and the preparation is adjusted to p_H 8.0. This medium keeps indefinitely. Solidification never occurs over 30 C. It is usually solid before using, and is heated and liquefied in a water bath to a temperature of approximately 45 C. The medium should be slightly above blood heat when withdrawn (by syringe) from the bottle. When cool, phosphates may appear as a sediment in the bottle, but they disappear on heating. It would be unwise to attempt to clear this medium with egg albumin as performed in the preparation of nutrient gelatin, for bacteriologic purposes. This gelatin-acriflavine preparation was tested for its action on a pyogenic organism as follows: Five cubic centimeters of a heavy culture of *Staphylococcus aureus* emulsified in sterile physiologic solution of sodium chloride was added to 30 cc. of gelatin-acriflavine. After inoculation, the flask was incubated for twelve hours. No growth was obtained on subsequent subculture, showing that the gelatin-acriflavine mixture was not only inhibitory but lethal to a virulent pyogenic organism recently isolated from the tissues. By

the incubation at body heat and at lower temperature it was found that the gelatin remained quite liquid and was easily drawn through a fine needle, and the antiseptic action of the acriflavine was bactericidal on short exposure. Further tests showed that this preparation was bactericidal to tubercle bacilli; the test was as follows: Two specimens of sputum, highly infected with tubercle bacilli (three plus), were pooled, subjected to the action of a strongly alkaline solution of sodium hypochlorite, and carefully washed. One half of the resultant sediment was emulsified in 5 cc. of sterile physiologic solution of sodium chloride, from which 1 cc. was extracted and injected subcutaneously into a guinea-pig (positive control). The remainder of the sediment was emulsified in 5 cc. of a 5 per cent gelatin solution in acriflavine (1:2,000) and incubated for twenty-four hours. A guinea-pig was then injected also subcutaneously with 1 cc. of this emulsion. After seventy-two hours' exposure at body heat, another animal was so treated. The positive control developed a lesion at the site of inoculation, and smears therefrom showed abundant pus cells and a few tubercle bacilli. At necropsy, the spleen showed a generalized tuberculosis. The incubation period was six weeks. The other two guinea-pigs showed no lesions after three months and were killed. At necropsy no lesions were found. It was observed, therefore, that (1) the use of gelatin does not impair the efficiency of the antiseptic employed and does not provide a nidus for growth; (2) this preparation will be of the utmost value in disinfecting the cavity. Ten patients have been treated with gelatin-acriflavine and some of them responded after all other treatments had failed.

Bacillus Calmette Guérin Strain of Tubercle Bacillus.—Sasso and Medlar present experimental data that leave no doubt that it is possible to enhance greatly the virulence of B C G if the culture is grown in a suitable environment. To determine the proper environment was not an easy matter, and to get the original culture to grow luxuriantly in the new environment was also difficult. It is essential to have the p_H adjusted between 7.2 and 7.4. This has necessitated the titration of Sauton's medium just prior to the addition of the fresh rabbit serum and to the transfer of the culture, for the medium is rather unstable. Fresh unheated rabbit serum seemed to be essential for a rapid increase of virulence. The factors that determine the virulence of pathogenic bacteria are but little understood. This is especially true for the tubercle bacillus. Environment plays an important part, but the factors necessary to produce the proper environment are largely unknown. From their study the authors believe that the p_H of the medium is one important factor and that there are substances present in unheated normal serum which greatly assist the tubercle bacillus to regain its pathogenicity. B C G, when grown under such an environment, developed a virulence which was greater than that of any other culture of tubercle bacillus which the authors have had in their laboratory. For more than six months, since the return of virulence, they have kept this altered B C G culture on Petroff's egg medium. It is still virulent, but to a lesser degree. Another fact of importance is that with the return of virulence the organism is equally pathogenic for guinea-pigs, calves and rabbits. It would seem that the normal rabbit serum has made advailable substances which have made the culture equally virulent for various animals. The work substantiates the observations of Petroff and Branch on the "dissociation" of B C G. They have not used the same method, but their end-results are similar. The gross appearance of virulent and of nonvirulent cultures is different. The virulent culture is smooth, veil-like, colorless, and easily emulsified. The culture of low virulence is rough, compact, often chromogenic, and emulsified with difficulty. In their work the authors have purposely taken the original culture without any attempt at "dissociation." There can be no question of contamination. It was possible to alter the original B C G culture in its gross appearance and in its virulence without resorting to isolation of single colonies. Since it is possible to bring about such a marked alteration of B C G "in vitro," and since so little is known relative to the factors that enhance or retard the pathogenicity of the tubercle bacillus, it would seem essential to use great caution in any application of B C G as a prophylactic vaccine against tuberculosis. Great care must be used in the selection of the culture medium for cultivation of B C G, if it is to be used as a prophylactic vaccine. The pathogenicity of B C G varies greatly with the environment. While Calmette's observations point, so far, to the innocuousness of the vaccine, still all control over the tubercle bacillus and its actions is gone once it gains access to the tissues. B C G is not a "virus fixé" unless it is kept in a certain environment.

Bulletins et Mém. de la Soc. des Chirurgiens de Paris

22: 645-688 (Nov. 7) 1930

Hypochlorites in Disinfection of Wounds. M. Léo.—p. 650.
Treatment of Open Fractures. M. Petit de la Villéon.—p. 661.
*Two Methods of Operation in Inguinal Hernia. R. Bonneau.—p. 664.
Intra-Articular Avulsion of Fragment of Bone in Knee. R. Massart. —p. 666.
Case of Duodenal Stasis. J. Lanos.—p. 671.
Cancer of Great Omentum. L. Bonnet.—p. 675.
Cyst of Parovarium. P. Muller.—p. 678.
Schlatter's Disease. M. Peugniez.—p. 680.
Volvulus of Entire Small Intestine on Mesenteric Axis from a Small Adhesion of Great Omentum. V. Pauchet and Le Gac.—p. 685.
Complete Isolated Fracture of Head of Radius. J. Lanos.—p. 687.

Two Methods of Operation in Inguinal Hernia.—Bonneau discusses two new methods of operative technic for use in cases of inguinal hernia. The first method, proposed by Bossy, is as follows: After the hernial sac has been detached but not opened, its free end is grasped with long curved forceps without teeth and is thrust back into the abdomen by invagination. As the forceps are brought upward and outward, their end is pressed against and through the inner surface of the abdominal wall, at a point as close as possible to the spina iliaca anterior, until the soft parts are passed. On the projection thus formed a short incision is made so that the extremity of the forceps, with the sac, may be brought through the wall. The sac is then grasped and fixed to the surface of the aponeurosis, or even to the skin. The forceps are drawn out. The author does not think favorably of this method, especially of the modified technic to be used in long standing adherent hernias, which involves separating the fibrous tissues common with the testis and invaginating the whole into the abdomen; if this were done and an orchitis should develop later, the testis would be in an extremely unfavorable position. In fact, the only conditions in which the author considers reduction *en masse* expedient are cases of ptosis of the large intestine, and even then he advocates preliminary opening of the sac to verify its contents. The second method, proposed and used extensively by Lembo, consists essentially in finding, separating and using the internal and external cremaster muscles as material for reconstruction of the wall. The author considers this method much more consistent and practicable than the first one.

Bull. et Mém. de la Soc. Méd. des Hôpitaux de Paris

(54): 1715-1769 (Dec. 8) 1930

Diffuse and Protean Osteitis of Knee, Probably of Syphilitic Origin. H. Dufour, Cottenot, Reyt and Riom.—p. 1716.
Torsion Spasm of Ziehen-Oppenheim Type. G. Guillain and P. Mollaret. —p. 1733.
Disappearance of Periarticular Calcifications in Case of Bilateral Scapulo-humeral Chronic Periarthritis. R. J. Weissenbach and F. Françon. —p. 1733.
*Primary Generalized Pneumococcal Peritonitis in Adult: Two Cases. H. Darré, L. Laederich and H. Mamou.—p. 1738.
Syndrome of Acute Anemia in Course of First Attack of Malaria. P. Melnotte.—p. 1744.
Exanthematous Undulant Fever. Védrenne.—p. 1747.
Epilepsy and Cardiopathy. D. Olmer, J. Berthier and J. Olmer.—p. 1750.
Soaps in Internal Therapeutics. M. Renaud.—p. 1754.
Gold Therapy in Pulmonary Tuberculosis. P. Ameuille and I. Klotz. —p. 1759.

Primary Pneumococcal Peritonitis: Two Cases.—Darré et al. report two cases of pneumococcal peritonitis in adults which they consider significant because of the fact that the disease is rarely observed except in children. The two patients presented an almost identical syndrome: brutal onset, diffuse abdominal pain resembling colic, nausea, alimentary, then bilious vomiting, profuse bilious and fetid diarrhea, drawn facies, high fever and rapid pulse. The differential diagnosis between pneumococcal and appendicular peritonitis is easy, since the presence of diarrhea and the almost complete absence of abdominal contraction are pathognomonic of the pneumococcal form. However, in the two cases reported, the usual difficulty was experienced in deciding between pneumococcal peritonitis and alimentary intoxication. In fact, in both cases the first diagnosis

made was that of alimentary intoxication, probably partly because of the definite elimination of the ordinary forms of peritonitis and because the pneumococcal form is so seldom encountered in adults. The correct diagnosis was based on the fact that the intensity and rapidity of the alteration in the patient's general condition did not seem consistent with the usual symptoms of alimentary intoxication; the abdomen proved not to be absolutely supple but instead presented a slight resistance in the subumbilical area and the iliac fossa; the porracious appearance of the vomit, the development of herpes of the lips and an excess of polymorphonuclears in the blood also seemed to indicate peritonitis. In one case surgical intervention was not attempted, and the patient died. The second patient was operated on after five days with excellent results. The authors hesitate to recommend any particular method of treatment, since the observation of two cases does not seem sufficient basis for assuming that the method of delayed operation, usually prescribed for children, is the treatment of choice for adults.

(54): 1771-1802 (Dec. 15) 1930

*Azotemia in Course of Typhoid With or Without Treatment by Acriflavine Hydrochloride. Brulé and Lenègre.—p. 1772.
Azotemia After Injections of Acriflavine Hydrochloride. A. Lemierre.—p. 1779.
Chrysotherapy in Tuberculosis. M. Renaud and Petit-Maire.—p. 1780.
*Pulmonary Tuberculosis in Diabetic Patients: Treatment by Bilateral Collapsotherapy and Insulin. M. Labbé, R. Boulin and Justin-Besançon.—p. 1781.
Case of Combined Sclerosis of Spinal Cord with Acute Ataxia in Patient Cured of Pernicious Anemia. P. Émile-Weil and G. Sée.—p. 1786.
Acute Nephritis from Ingestion of Corrosive Mercuric Chloride. R. Choisy and E. Perrot.—p. 1789.

Azotemia in Typhoid.—Brulé and Lenègre report two cases of azotemia in typhoid patients who had received injections of acriflavine hydrochloride. They also report a case in which azotemia was observed in a typhoid patient who had not been given the acriflavine hydrochloride treatment; the azotemia was not accompanied, moreover, by either albuminuria or cylindruria and marked diuresis was present. Since it has been proved experimentally that acriflavine hydrochloride sometimes causes azotemic nephritis, and since azotemia may also be caused by the typhoid itself, diagnosis becomes a delicate problem in cases in which azotemia is observed after injections of the medicament and the urea content of the blood has not been determined before the beginning of the treatment. Moreover, the two causes, acting simultaneously in the same patient, could have a cumulative effect. The authors do not consider these facts sufficient grounds for discontinuing the use of acriflavine hydrochloride in the treatment of typhoid patients, however, since it has been employed in so many instances with excellent results. They merely advise careful observation of the patient and regular determination of the urea content of the blood, even in the absence of pathognomonic urinary symptoms.

Pulmonary Tuberculosis in Diabetic Patients.—Labbé et al. report two cases that they have observed for three years and one that they have observed for four years in which tuberculosis developed in the course of diabetes and in which insulin treatment combined with the establishment of a therapeutic pneumothorax has given good results. In the last case the patient was in a condition of diabetic coma at three different times and three times presented acute pulmonary symptoms. Yet with careful attention to diet and regular doses of insulin, and with a pneumothorax on the left side and a phrenicectomy on the left, she was able to lead a comparatively normal life at the time of writing. While there can be no hope of an actual cure in such cases, the authors point out the possibility of enabling patients to control their condition by a combined treatment of the diabetes and tuberculosis so that they may live in apparent good health for an indefinite period.

Lyon Chirurgical

27: 705-852 (Nov.-Dec.) 1930

*Local Anesthesia in Major Operations on Stomach. S. S. Judine.—p. 705.
Osteogenic Disease Terminated by Malignant Evolution of a Chondroma. J. Creyssel and R. Peycelon.—p. 733.
Cholecystostomy and Pseudolithiasis of Gallbladder: Alternate Excretion of Bile and Mucus. P. Santy and P. Mallet-Guy.—p. 750.

Local Anesthesia in Major Operations on Stomach.—Judine reports a number of long and complicated operations —resections for peptic ulcers after gastro-enterostomy, subtotal resections for precardiac gastritis ulcers, total and subtotal gastrectomies for cancer and other diseases—in all of which he used local anesthesia. He attributes the excellent results that he secured to the method of anesthesia. Patients already dangerously weakened cannot be kept under the influence of a profound general narcosis for two or three hours without having intestinal disturbances that interfere with the completion of the operation. A less profound narcosis does not insure a sufficient relaxation of the abdominal wall and thus makes it difficult to gain access to all parts of the abdominal cavity. An incomplete narcosis, moreover, is dangerous in its reflex effects, for an insufficiently paralyzed nervous system is easily overexcited and may lead to operative shock. The use of local anesthesia, however, makes it possible to avoid these difficulties. There is no general intoxication and a complete relaxation of the abdominal wall is secured. The only wholly effective means of preventing irritation of the central nervous system is by a complete blockage of the afferent nerves.

Revue Belge des Sciences Médicales, Louvain

2: 749-828 (Nov.) 1930

*Roffo's Neutral Red Reaction in Diagnosis of Cancer. J. Bottin.—p. 749.
Rectal Narcosis with "Avertin." P. Guns.—p. 765.
Preventive Vaccination of Adult Guinea-Pigs with B C G by Ocular Method. P. Nélis.—p. 774.

Roffo's Neutral Red Reaction in Diagnosis of Cancer.—Bottin first reviews the literature in which numerous authors give the results of experiments to determine the value of Roffo's neutral red reaction in the diagnosis of cancer. The totality of the observations reported showed that among 1,211 cases of cancer a positive reaction was obtained in 70.5 per cent and among 3,807 cases of noncancerous conditions a positive reaction was obtained in 13.4 per cent by the use of the neutral red test. The author's personal experiments include 140 cases of cancer, in 89 of which (63.57 per cent) the reaction was positive and in 50 of which (35.71 per cent) it was negative. Among 140 cases of noncancerous conditions, he obtained 45 positive reactions (32.14 per cent) and 89 negative reactions (63.57 per cent). Since the positive reactions in noncancerous conditions included a great variety of diseases, some of them difficult to distinguish from cancer in the early stages, the author feels that Roffo's reaction has little if any practical diagnostic value. He continued his experiments, however, in order to ascertain whether the reaction could throw any light on the disturbances produced in the organism by cancer or on the general disorders that tend to produce cancerization. He found that it is evidently favored by a high carbon dioxide content of the blood, that it seems due to a disequilibrium that is capable of passing through inflamed membranes and that the reaction is found most often and to the greatest degree in markedly cachectic conditions, whether or not the cachexia is connected directly with cancer.

Schweizerische medizinische Wochenschrift, Basel

60: 1169-1192 (Dec. 13) 1930

Discussion of Present-Day Obstetric Problems. A. Goenner.—p. 1169.
Tuberculosis of Thyroid. A. Dimtza.—p. 1170.
Typhus and Typhus Recurrens in South Russia. L. Winteler.—p. 1172.
Behavior of Dust Particles Under Influence of Ultraviolet Rays. Pfaff.—p. 1174.
*Results of Vaccination in Persons Who Nine Years Previously Had Had a Mild Form of Smallpox and in Patients with Chickenpox. E. Diem.—p. 1174.
Pharmacology of Valerian. E. Beck.—p. 1180.
Percutaneous Resorption of Irradiated Ergosterol. M. Lazarew.—p. 1182.

Vaccination in Persons Who Had Had Mild Smallpox and in Patients with Chickenpox.—Among forty-five persons who from eight to nine years previously had had an attack of modified smallpox (varioloid), Diem observed not a single entirely successful vaccination. In about 10 per cent of the cases the effect of vaccination was slight and could be estimated at from one fifth to one third of a complete success. These results are surprising, since in other localities vaccinations have been successful after much shorter periods. From the point of view of immunology this epidemic of modified smallpox is more like true smallpox than are other forms of smallpox, especially that form which is designated as alastrim. The author also investigated the effects of vaccination in patients with chickenpox

Some patients were vaccinated before the exanthem became manifest, others while the eruption was most severe, and a third group during the period when the eruption was disappearing. In all of these cases the vaccination results were positive. In comparing the effects of the vaccination in patients with chickenpox with those in healthy children, differences could not be detected.

Annali Italiani di Chirurgia, Naples

9: 1219-1344 (Dec. 31) 1930

*Primary Malignant Tumors of Lung from Clinicotherapeutic Point of View. E. Gioja.—p. 1219.
Filling of Bone Cavities with Iodoformized Plaster. R. Brancati.—p. 1244.
*Primary Intra-Ossal Chronic Abscess (Brodie's Abscess). L. Radice.—p. 1258.
Calcium Content of Bone Fragments at Site of Experimental Fractures. C. Loreto.—p. 1283.

Primary Malignant Tumors of Lung.—Gioja deals with a case that came under his observation and presents a number of views on the diagnosis, prognosis and treatment of primary malignant neoplasms of the lung, calling attention, above all, to the frequency with which these tumors are confused, from the roentgen point of view, with hydatid cysts of the lung, and to the difficulties that still prevent an early diagnosis. From the surgical point of view, the possibilities of radical treatment are found in only a limited number of cases, owing to the difficulties encountered in endeavoring to reach an early diagnosis. Some operators report considerable improvement from the use of local anesthesia. Alessandri, followed by almost all operators of late, establishes a pneumothorax the day before the operation, and finds this refinement in the technic of considerable importance.

Primary Chronic Bone Abscess (Brodie's Abscess).—Radice states that Brodie's abscess is more common than is supposed, being found, according to some statistics, in from 7 to 12 per cent of the cases of osteomyelitis. He describes four cases that came under his observation. On the basis of his observations and the reports in the literature, he endeavors to give a complete clinical picture of this interesting disorder and to establish within precise limits its pathogenic bases.

Archivio Italiano di Chirurgia, Bologna

27: 537-639 (Nov.) 1930

Experimental Researches on Pneumectomy. A. Vecchi.—p. 537.
Evolution of Congenital Coxa Vara. D. Bargellini.—p. 578.
Physiopathology of a Ureter Subjected to Forceps Pressure. P. Pieraccini.—p. 585.
*Clinical and Experimental Researches on Certain Disturbances Associated with Spinal Anesthesia. L. Biancalana.—p. 601.
*Resection of Lumbar Sympathicus: Thermometry. M. Ronzini.—p. 620.
Strumitis Due to Pneumococcus. L. Docimo.—p. 627.

Research on Disturbances Associated with Spinal Anesthesia.—Biancalana points out that the variability in the physiologic conditions of the spinal fluid, together with the diversity of technic employed in spinal anesthesia, complicates research on the pathogenesis of the disturbances resulting from rachianesthesia. The results of clinical and experimental research on the phenomenon of the solution of the substances injected into the spinal canal and on the neurotropism are contrary to the hypothesis of the movement of the anesthetic to the bulbar centers, since spinal anesthesia is applied to the lumbar spaces and none of the maneuvers calculated to favor the diffusion of the anesthetic upward is employed, and since the patient is kept, after the puncture, in a horizontal or upright position. The possibility of doses of an anesthetic attaining the superior nerve centers may be realized when the technic employed is different or when the puncture is applied to the thoracic spaces. The Trendelenburg position applied for a moment after rachianesthesia is useful in all disturbances possibly due to bulbar anemia.

Resection of Lumbar Sympathicus: Thermometry.—Ronzini, following researches reported in a previous article, from which it became evident that lumbar sympathectomy does not induce immediate vasoparalysis in the adjoining femoral artery, in this article studies the effects, immediate and remote, of lumbar sympathectomy on the temperature of the lower limb. He experimented on the dog, using a sensitive thermo-electric needle, which was implanted in the muscles of the hip. In some of the individuals there developed transitory hyperemia and hyperthermia, but in most of the dogs positive thermometric reactions were lacking. The possibility of correcting the trophism of a limb affected by disturbances of angiospastic origin thus remains doubtful. But since the good results secured by other authors by such operations on man in angiospastic diseases of the extremities cannot be categorically denied on the basis of researches on animals, the author concludes that, in order to explain the diversity of results in the two fields—the clinical and the experimental—it may be postulated that the lumbosacral sympathicus, assuming in pathologic conditions a state of tonic hyperexcitation, acts under the influence of an essential pathogenic factor of the angiospastic disease.

Clinica Medica Italiana, Milan

61: 545-660 (Nov.-Dec.) 1930

Neoplasms of Duodenal Papilla. G. Colella.—p. 545.
*Congenital Atresia of Orifice of Pulmonary Artery, with Closed Interventricular Septum and Persistent Botallo's Duct, in Man, Aged Twenty. A. Costa.—p. 567.
Energy Exchange and Glycoregulation. G. Lami.—p. 575.
*Etiopathogenic Researches on Pleuritis Due to Therapeutic Pneumothorax. R. Scalabrino.—p. 598.
Atypical Ventricular Forms in Cardiac Insufficiency and Angina Pectoris. R. Capo and G. Bagnaresi.—p. 627.

Congenital Atresia of Orifice of Pulmonary Artery.—Costa describes a rare case of atresia of the orifice of the pulmonary artery in a man, aged 20. It is exceptional that life, under such conditions, was prolonged beyond childhood. In addition to the persistence of Botallo's duct, a peculiar malformation was associated with the atresia of the artery which the author refers to the superior septum; namely, a cribrate condition of the anterior circumference of the foramen ovale. The author also presents a rare type of tendon cord in a child, extending between Botallo's foramen and the mitral valve. This observation, which some connect with the superior septum, is referred by the author to the intermediate septum. In the case of atresia of the orifice of the pulmonary artery, the compensation was effected in great measure by the patency of the foramen ovale and the persistence of Botallo's duct. The patient presented an intense cyanosis and osteopathy of the fingers and toes. There was no focus of pulmonary tuberculosis.

Etiopathogenic Researches on Pleuritis Due to Therapeutic Pneumothorax.—Scalabrino gives the results of his histologic researches on the pleura, not only in persons in whom necroscopy showed no intrathoracic tuberculous lesions demonstrable microscopically, but also in tuberculous persons subjected to collapse therapy of the lung. On the basis of the results secured, he considers that, in the majority of subjects without tuberculous lesions microscopically visible, there are found, at the microscopic examination, in the parietal and the visceral pleura, especially at the site of scars due to thickening, remnants of a tuberculous process, probably due to an invasion from a primary focus. On the basis of these data, he assumes that there occurred during the pneumothorax treatment a reactivation of these foci that had long been dormant. The clinical manifestations of this reactivation may be profoundly different in different cases, in relation chiefly to the histologic type that the inflammation in the pleura may assume (ranging from simple hyperemia to the exudative vascular type), and only secondarily in relation to the general and local allergic factors.

Clinica Pediatrica, Modena

12: 1019-1112 (Dec.) 1930. Partial Index

*Etiology of Aphthous Stomatitis. V. Zamorani.—p. 1095.

Etiology of Aphthous Stomatitis. — Experimental researches lead Zamorani to believe that aphthous stomatitis in children is caused by the virus of herpes simplex. In the mouths of six children with aphthous stomatitis, well differentiated from herpetic stomatitis, the author demonstrated the presence of a virus, which when inoculated into the conjunctival sac of the eyes of rabbits (through the scarified cornea) caused a typical experimental herpetic keratoconjunctivitis which confers immunity to the eye, both against a virus of the same nature as that which was inoculated and to the virus of herpes simplex. One rabbit developed encephalitis after the experimental lesion of

the eye. Serial direct inoculation from eyes affected with experimental keratoconjunctivitis of stomatitic origin to normal eyes of other rabbits caused the transmission of the disease, which presented an intense nature even after the sixth transfer. Bacteria cultivated from eyes of rabbits with the experimental disease are not pathogenic to the eyes of normal rabbits. The inoculation made with filtrates of tissues affected with the disease failed to cause the experimental disease, though it conferred an attenuation of the normal receptivity of the tissues to the infection. The author says that the especial features that herpetic diseases show in children are probably due to the fact that in childhood the mucosae are more receptive than the skin to the herpetic virus.

Giornale di Clinica Medica, Parma

11: 1185-1280 (Dec. 10) 1930

Thyroid and Lipoid Nephrosis. V. Pennati.—p. 1185.
*Orthodiagraphic Records of Heart and Aorta in Case of Addison's Disease. A. Tattoni.—p. 1199.
*An Acute Hemocytoblastic Syndrome. A. Esposito.—p. 1205.
Treatment of Menstrual Disorders. A. Schweitzer.—p. 1210.

Heart and Aorta in Case of Addison's Disease.—Tattoni describes the orthodiagraphic records of the heart and the aorta in a case of Addison's disease and reaches the conclusion that in this disease those organs in direct relation to the pressure disequilibriums undergo volumetric changes comparable to manifestations of a state of hypotonia, which invades these organs under the action of the epinephrine deficit due to suprarenal insufficiency. The aortic hypotonia reveals itself by a more or less marked dilatation of the vessel caliber; the myocardiac hypotonia manifests itself by a weakening of the whole organ but especially of the left ventricle.

Acute Hemocytoblastic Syndrome.—Esposito describes a new case of acute hemocytoblastic syndrome developing in a boy, aged 9, previously well, with fatal evolution in fifteen days. He gives a brief account of the clinical manifestations and the hematologic observations.

Pediatria, Naples

38: 1201-1256 (Nov. 15) 1930

*Symptomatology of Echinococcosis of Liver in Children. G. Vitetti.—p. 1201.
Ionic Dissociation and Protein Content of Blood Serum of Infants with Nutritional Disturbances. B. Vasile.—p. 1217.
*Malignant Abdominal Sarcoma with Rare Localization in Child. G. Bovenzi.—p. 1227.

Symptomatology of Echinococcosis of Liver in Children.—Among a group of fifty-eight children, aged from 1 to 12 years, with echinococcosis of various organs, observed by Vitetti, the infection was localized in the liver in thirty-four. The condition is more frequent in children of about 12 years and it is never observed in children aged less than 3 years. The most frequent localization of hydatid cyst in the liver in children is the right lobe (eleven out of thirty-four cases); coming next in importance is that of the left and central lobes of the liver (with nine and five cases, respectively, out of thirty-four). The liver reacts against the hydatid process by increasing its size and consistency. This phenomenon of hyperplasia is more marked in children than in adults. The evolution of hydatid cyst is protracted, from one to four years in the author's cases, after the discovery of the cyst; as a rule, hydatid cysts of the liver in children develop in a silent form until accidentally discovered. Owing to the fact that children are more exposed than adults to trauma, the rupture of hydatid cyst into the peritoneal cavity is more frequent in the former than in the latter. The author makes reference to the diagnostic value of several tests. The exploratory puncture that should represent the best diagnostic resource is dangerous. Though performed with the best asepsis, it may give origin to anaphylactic, hemorrhagic or even suppurative phenomena. As to treatment, surgery is the only reliable method; the earlier the operation is performed, the better are the results.

Malignant Abdominal Sarcoma with Rare Localization in Child.—Bovenzi reports the case of an unusual form of malignant abdominal tumor diagnosed clinically as abdominal sarcoma with peritoneal localization in a child aged 6 years. The condition, which at first did not seem serious, became aggravated by the rapid and sudden development of the tumor. A laparotomy revealed the presence of an inoperable malignant sarcoma of large size, occupying the entire abdominal cavity. It originated in the vicinity of the spinal column, to which it was united by a large pedicle which crossed the abdomen in its entire anteroposterior diameter.

Riforma Medica, Naples

46: 1737-1776 (Nov. 3) 1930

Osmotic Resistance of Erythrocytes Secured by Splenopuncture in Morbid Processes Associated with Splenomegaly. A. Fieschi,—p. 1739.
*Meinicke Clarification Test in Relation to Wassermann Test. E. Soscia.—p. 1741.
Two Rare Cases of Prolonged and Recurring Osteomyelitis. U. Fogliani.—p. 1744.

Meinicke Clarification Test in Relation to Wassermann Test.—Soscia recalls that the Meinicke clarification test is a modification of the Meinicke flocculation test. The positive reaction consists in the clarification that is produced in the serum mixture when brought into contact with the dilute antigen. In the negative case, the serum mixture remains turbid. From the results secured in the testing of 200 serums, the author concludes that the Meinicke clarification test is plainly more sensitive than the Wassermann test and constitutes an excellent control and valuable aid to the Wassermann test. It may be used, therefore, in combination with the Wassermann test or alone. Since it possesses a definite specific power and a high degree of sensitiveness, it is a reliable test when used alone.

46: 1777-1816 (Nov. 10) 1930

Acute Anterior Poliomyelitis: Early Diagnosis and Causal Treatment. G. B. Allaria.—p. 1779.
Multiaxial Pendular Modification of Patellar Reflex. L. Benedek and E. von Thurzò.—p. 1785.
*Point of Technic in Retrogasserian Neurotomy. D. Vallone.—p. 1790.

Point of Technic in Retrogasserian Neurotomy.—Vallone recalls that, in the first case of retrogasserian neurotomy that he observed, he became convinced that the hemorrhage that occurs as a result of the blocking of the middle meningeal artery is a drawback, in the completion of the operation, adding greatly to the difficulties, and that tamponing of the foramen rotundum whether it is done with cotton or with pieces of wood or bone does not suffice to arrest effectively the hemorrhage. It seemed therefore clear that there was need of ligating the artery, and through experimentation on cadavers he found that in order to ligate the artery readily in all cases it was necessary to have on hand a number of suture carriers of different curvature and sizes, since the position of the foramen rotundum varies in its relation to the eminentia arcuata. He prepared such needles in advance and in three operations, one performed by Professor Vagliani and two by himself, it was possible to ligate the middle meningeal artery at two points and thus to reach Meckel's cavity with rapidity and safety.

Semana Médica, Buenos Aires

37: 1457-1536 (Nov. 13) 1930. Partial Index

Rheumatic Alterations of Auriculoventricular Conduction. T. Padilla and P. Cossio, Jr.—p. 1469.
Physiologic Displacement of Heart. G. Bosco.—p. 1475.
*Sugar Metabolism in Obesity: Predisposition of Obese to Develop Diabetes. P. B. Landabure.—p. 1479.
Robertson Lavalle's Operation in Coxalgia. E. A. Votta.—p. 1487.
Simultaneous Roentgen Examination of Gallbladder and Urinary Tract. B. Varela Fuentes and P. Rubino.—p. 1530.

Sugar Metabolism in Obesity.—Landabure made determinations of the sugar metabolism in a group of sixty-four obese persons who did not have glycosuria. The blood sugar was determined both at fasting and after the administration of dextrose. During fasting, thirty persons had a normal sugar content of the blood (from 0.7 to 1 Gm. of sugar per thousand cubic centimeters of blood); nineteen persons had a transitional glycemia (with figures ranging between 1 and 1.3 Gm. per thousand cubic centimeters of blood) and fifteen persons had a manifest hyperglycemia (with figures above 1.3 Gm. per thousand cubic centimeters of blood). After the administration of dextrose in the first subgroup (thirty patients with normal content of sugar in the blood at fasting) the results of the test were negative in eight, strongly positive in ten, slightly positive in eight and doubtful in four. In the second subgroup (nineteen persons

with transitional hyperglycemia) the results were positive in twelve, negative in six and in one person the test was not made. In the third subgroup (fifteen persons with manifest hyperglycemia) the results of the test were positive in nine, negative in two and in the remainder either the test was not made or the results were doubtful. The results indicate that 60 per cent of obese persons who have either transitional forms of glycemia or manifest hyperglycemia react in a positive manner to the test of provoked hyperglycemia. The author considers that there is a relationship between obesity and diabetes which is proved by the predisposition that obese persons have to develop diabetes. Hence the advisability of making the determinations of the mechanism of the sugar regulation in obese persons. When the test of provoked hyperglycemia does not yield positive results in strongly suspected cases of disturbed sugar metabolism, the same test should be repeated after the function of the pancreas has been exhausted.

37: 1693-1772 (Dec. 4) 1930

History and Importance of Discovery of Spirochaeta Pallida. D. Speroni. —p. 1693.
Complications of Appendectomy. C. I. Allende.—p. 1697.
Syndrome of Uremia and Chloropenia with Meningeal Symptoms. J. M. Mocera, I. Feigues and J. Pereyra Kafer.—p. 1718.
*Smallpox Vaccination in Treatment of Whooping Cough. G. A. Schiavone. —p. 1723.
Osteogenesis of Periosteal Origin. O. Ivanissevich and R. C. Ferrari. —p. 1730.
Quantitative Determination of Urea in Blood: Method of Folin-Wü. N. E. Insúa.—p. 1736.
Fibromyxoma of Meninges Causing Paralysis of Legs and Disturbances of Gallbladder. O. Copello and D. Brachetto-Brian.—p. 1740.

Smallpox Vaccination in Treatment of Whooping Cough.—Schiavone vaccinated ninety-four children not previously vaccinated who had whooping cough. The age of the children ranged from 3 months to 9 years, though the largest number were from 7 months to 4 years. In a large number of previously nonvaccinated children with whooping cough, vaccination caused a favorable evolution of the disease. As soon as vaccination takes effect, the attacks of cough diminish both in number and in intensity and in most of the cases vomiting stops. In cases in which the intensity of paroxysmal attacks is not as yet established in a determined form, vaccination prevents them, while in those cases in which the paroxysmal attacks are already established in all their characteristic intensity the influence of vaccination causes their discontinuation. Vaccination is advisable as treatment of whooping cough in nonvaccinated children in good general condition. In these children, vaccination does not cause disturbances nor complications. However, the examination of children should precede vaccination in order to exclude from the treatment those children with poor nutritional conditions and those who exhibit marked weakness or tuberculosis. The influence that revaccination may have on whooping cough has not been as yet determined, because no revaccination has been made heretofore in relation to these observations. It seems advisable to make further studies on the influence of revaccination on the condition in order to find out whether the good results obtained from vaccination could be obtained also from revaccination. The mechanism by which vaccination acts on whooping cough is still unknown. It would be explained, however, by the conception that it is caused by the formation of a small fixation abscess at the level of the pustule. Seventy-four cases are briefly discussed.

37: 1773-1852 (Dec. 11) 1930. Partial Index

*Dolichocolon. A. Dagnino.—p. 1780.
Investigations of Cerebrospinal Fluid of the New-Born for Xanthochromia. C. M. Pintos.—p. 1815.
*Bad Results of Radium Applications in Treatment of Ozena. R. Podestá and M. Arana.—p. 1820.
Symptomatology of Diabetes in Children. F. Puchulu.—p. 1822.
Cavernous Angioma of Orbit: Functional Recovery After Operation. A. Crocco.—p. 1826.
Symptoms of Hypoglycemic Syndrome of Diabetes in Children. P. B. Landabure.—p. 1830.
Syndrome of Total Division of Ulnar and Median Nerves and Partial Division of Musculocutaneous and Internal Brachial Cutaneous Nerves Caused by Gunshot Wound. B. B. Spota and A. E. Despontin.—p. 1833.
Involution Psychosis of a Paranoid Type as Complication of Menopause. A. Barrancos.—p. 1836.
*Fracture of Anterior Wall of Right Frontal Sinus Caused by Trauma. E. de Cerqueira Falção.—p. 1846.

Dolichocolon.—Dagnino's paper is divided into seven chapters: The first chapter deals with the normal colon from the anatomic and physiologic points of view, and factors related with the embryonic development of the colon and neighboring organs, the development and functioning of the colon in several periods of extra-uterine life and adult age, and the vascular and nervous systems of the colon are discussed in detail. In the second chapter, the etiology, pathology and symptomatology of dolichocolon are discussed. The author says that dolichocolon has characteristic symptoms which make of it a clinical entity. In the third chapter (which deals with the anatomic and clinical forms that dolichocolon presents), the author considers that there are as many anatomic forms of dolichocolon as there are segments in the colon. The type of the abnormality is influenced by the segment involved, since the condition may be total or partial and one or several of the segments of the colon may be affected. The condition presents several clinical forms, the most common of which are those of a painful type sometimes associated with pneumatosis. In a discussion of the frequency of dolichocolon, the author states that he found 50 cases out of a total number of 1,000 patients with diseases of the digestive tract. The condition is more frequent in women than in men. In the author's cases the segments most frequently affected were, in order of frequency, the sigmoid colon, transverse colon, ascending colon, cecum and descending colon. The condition of total dolichocolon is rare. In the fourth chapter are discussed the clinical and roentgen diagnoses. For roentgen examination of the colon the author advises the oral administration of the opaque substance. He objects to the use of the opaque enema. Though it saves time to the roentgenologist, it causes exaggerations of the abnormality, giving results that are not exact. The roentgen examination after the ingestion of the opaque substance permits a correct estimation of the condition on the basis of the descent of the substance. The fifth and sixth chapters include points related to the prognosis and treatment of dolichocolon. Especial emphasis is laid on the orthopedic and physical therapy. Some advice is given on diet. The seventh chapter includes the case reports of seven cases discussed in detail and illustrated with roentgenograms of several types of dolichocolon.

Results of Radium Applications in Treatment of Ozena.—Podestá and Arana consider radium therapy in ozena dangerous. The dose is not as yet definite and the application of a dose of radium larger than that which the tissues can tolerate may cause permanent deformities. Because of the atrophy caused by ozena in the tissues, the septum has been rendered thin. Besides that, the nasal cartilages are highly sensitive to the action of radium. If radium therapy is given to patients with ozena, the septal cartilage should be protected with proper filters. The same dose that may be only stimulative and beneficial to some of the tissues may cause extensive necrosis and large perforations in the septum, either as immediate or as late results. The authors report the case of a woman, aged 22, with ozena of neither syphilitic nor tuberculous origin. While receiving the treatment the patient developed regional symptoms which compelled discontinuation of the treatment, after she had received a total number of six applications of radium of seven hours each, once a week. The bad odor of the nose disappeared in this case, though the crusts persisted. The examination of the patient showed, besides a condition of atrophic rhinitis of an ozenous origin, the presence of a large perforation of the septum which did not exist before the applications of radium and which proved to be caused by radium therapy. Though the literature contains few case reports of this kind, the authors were able to find similar bad results reported from radium therapy in ozena, such as the causation of permanent fistulas in the nose, or large perforations in the hard palate. They consider it advisable to publish reports of patients who received treatment a long time ago, in order to set the right value on the results of the treatment.

Fracture of Anterior Wall of Right Frontal Sinus.—De Cerqueira Falção's patient was accidentally injured by the elbow of a laborer while the latter was carrying a heavy load on his head and holding it with his hands. The blow made the patient fall down and when he got up he felt dizzy. Half an hour after the accident the patient began spitting blood and palpebral edema appeared. On palpation a soft spot was felt on

the supraciliary region where the blow had been received and slight crepitation was heard. Roentgen examination showed the presence of a fracture of the anterior wall of the right frontal sinus. Four days after the trauma had been received and when the patient had been given only a slight disinfectant and medical treatment, the edema disappeared and the patient abandoned all treatment. The author says that the fractures of the anterior wall of the frontal sinus are rare and depend on several factors, such as the size of the sinus, the thinness of the anterior wall and the shape of the forehead, factors which could be noted in the roentgenograms of the author's patient. The blow with the elbow of another person had not been previously reported as a cause of these fractures.

Archiv für Schiffs- und Tropen-Hygiene, etc., Leipzig

34: 625-674 (Dec.) 1930

*Blackwater Fever: Treatment. P. Ujlaki.—p. 625.
Malaria: Antiparasitic Properties of Blood Serum. A. Radosavljević. —p. 629.
*Protozoal Disease of Intestine in Children. R. Odriosola.—p. 643.
*Leprosy: Biochemical Characteristics. A. S. Rajewski.—p. 651.
Poisoning with Cobra Venom: Anatomicopathologic Changes in Central Nervous System. E. P. Owtscharenko.—p. 657.
Surra: Treatment. O. Nieschulz and F. K. Wawo-Roentoe.—p. 662.

Blackwater Fever: Treatment.—Ujlaki believes that the hemolysis in blackwater fever is produced chiefly by the action of products of liver metabolism that have a hemolytic action on the constitutionally inferior erythrocytes. Therefore in the treatment of this condition his main object is to prevent the development of the hemolytic products of liver metabolism. He gives large doses of dextrose by mouth and in drop enemas and supports the functioning of the liver by injections of insulin. During the first three or four days the diet consists exclusively of carbohydrates in the form of bananas and sweetened fruit juices. In order to stimulate diuresis the patients are given large quantities of fluids. Even at night they receive a drop enema consisting of a 5 per cent dextrose solution containing 1 per cent of sodium bicarbonate and 40 or 50 drops of solution of epinephrine hydrochloride per liter. As a beverage they receive sweet lemonade to increase the alkalinity of the blood and thereby counteract the hemolysis. Diuretics are never used. With this form of treatment, jaundice appears only rarely and when it does it is minimal. In five cases a striking cessation of the hemoglobinemia was noted following three or four subcutaneous injections of 1 cc. of autoserum. Quinine is given only in the cases in which malarial parasites are present in the blood. Even in large doses it does not produce deleterious effects if its administration is not begun until the fourth day of the supportive treatment of the liver.

Protozoal Disease of Intestine in Children.—Odriosola states that protozoal infection of the intestine of children causes a chronic toxemia accompanied by protean symptoms. The symptoms may be divided into various groups, which represent clinical forms. It is the belief of the author that protozoal infection of the intestine may be the direct or indirect etiologic factor in many intestinal disorders in children that are now considered to be the result of a faulty diet.

Leprosy: Biochemical Characteristics.—Rajewski studied the biochemical characteristics of leprosy in three persons with mixed leprosy, three with nodular leprosy, two with macular leprosy and three in the exacerbation stage of leprosy (leproid erysipeloid and exacerbations with fever and nodule formation). It was found that in leprosy the carbohydrate metabolism is diminished. In this disturbance an important part is played by a dysfunctioning of the liver. Determinations of the sugar content of the blood following the intravenous injection of dextrose revealed a disturbance in the carbohydrate metabolism in all forms of leprosy.

Deutsche medizinische Wochenschrift, Berlin

56: 2119-2162 (Dec. 12) 1930

Immunity Processes: Their Anatomic Foundations and Their Significance for Tuberculosis in Man. W. Pagel.—p. 2119.
Care of Scarlet Fever Convalescents to Prevent Contagion. O. Bauer and J. Minkiewitsch.—p. 2123.
*Rational Calcium Therapy During Childhood. L. Langstein.—p. 2127.
Psychology of Accident Neuroses. M. Eyrich.—p. 2129.
*Treatment of Malignant Tumors with Radioactive Bismuth (Radium E). H. Kahn.—p. 2131.

Rational Calcium Therapy During Childhood.—Langstein points out that calcium preparations are used with good results in many disturbances during childhood, in tuberculous processes, in nervous disturbances, in rickets and in allergic diseases. However, calcium therapy has the disadvantage that the effective preparations have an unpleasant taste. In calcium malonate the author discovered a preparation which has the advantage of being tasteless. In order to determine the therapeutic value of calcium malonate, its influence on the calcium content of the blood was investigated, because only those calcium preparations have a therapeutic value which effect an increase in the calcium content of the blood. The tests revealed that calcium malonate increases the calcium content of the blood considerably, and because it has not an offensive taste it can be administered in large quantities. The author's experiences with calcium malonate extend over a period of six years. The preparation proved helpful in spasmophilic diathesis, in the treatment of children with tuberculosis, in nervous disorders in older children, in allergic disturbances and especially in tetany. In developmental disturbances of unknown etiology, calcium malonate may be added to the food. Frequently this proves helpful. In regard to the dosage it is stated that, in eclamptic manifestations in infants aged 1 year, from 5 to 8 Gm. should be given daily. In older children, from 10 to 15 Gm. is the daily dose. The preparation can be mixed with the food. In the treatment of tuberculosis, in chronic, nervous disorders or in developmental disturbances a daily dose of from 3 to 5 Gm. is sufficient.

Treatment of Malignant Tumors with Radioactive Bismuth (Radium E).—Kahn states that chemical analysis of tumors and organs which had been treated with heavy metals revealed that bismuth is the only heavy metal that deposits selectively in the tumor cells. Because of this the therapeutic doses of most heavy metals are almost toxic doses, whereas in the case of bismuth therapeutic effects can be obtained with doses that do not cause toxic effects. In animal experiments as well as in human beings, injections of bismuth influenced the growth of tumors. However, the results were only temporary, even when the injections were combined with irradiations. Experiments which the author performed in collaboration with Melzer were based on the theory that, instead of effecting a secondary radiation in the cells by irradiation from the outside, it would perhaps be more effective to substitute for the irradiation from the outside a radiation within the tumor cells. It was found that the bismuth isotope radium E is the only radioactive substance which, in parenteral administration, influences the tumor cells without injuring other cells. Experiments on animals revealed a selective deposition of the bismuth preparations containing radium E, in the tumor cells. They contained eighteen times as much as other cells. The radioactive bismuth is eliminated mainly by the kidneys. Only small quantities are eliminated by way of the liver and the intestine. In these eliminating organs the bismuth is therefore often temporarily increased. However, the bismuth isotope radium E has not, like other radioactive substances, as for instance the thorium isotopes, an affinity for the reticulo-endothelial system and the spleen. In the cancer patients in whom the bismuth radium E was employed, the general condition improved considerably and marked changes in the tumor could be noted after several injections. However, because the technic still needs to be perfected, and because of the short time of observation, conclusive statements in regard to the therapeutic value of this method cannot be made as yet. The author recommends the further investigation of the method.

56: 2163-2204 (Dec. 19) 1930

*Chronic Tonsillitis and Its Sequelae. O. Bruns.—p. 2163.
*Mice as Indicators of Presence of Carcinogenic Noxae in Factories or in Dwellings. O. Teutschlaender.—p. 2166.
Principles and Method of Insulin Therapy of Diabetes in Clinic and in Ambulatory Practice. K. Holm.—p. 2167.
Treatment of Circulatory Weakness in Septic Peritonitis by Means of Injection of Epinephrine. A. Faber.—p. 2174.

Chronic Tonsillitis and Its Sequelae.—Bruns asserts that it is not always simple for the internist to determine the rôle of chronic tonsillitis in the pathogenesis and in the course of internal diseases. The majority of internists agree that rheu-

matic diseases such as rheumatic polyarthritis, chorea, infectious heart diseases and also nephritis and the so-called infectious forms of arthritis may be considered as sequelae of tonsillar foci. The author further discusses the clinical signs of chronic tonsillitis and its relation to disturbances of internal organs. He comes to the conclusion that the serious, life endangering diseases are rarely sequelae of chronic tonsillitis. However, the chronic, inflammatory foci in the tonsils frequently cause a predisposition to diseases. In regard to the indications for tonsillectomy most internists agree, in that they do not advocate the removal of the tonsils merely on the diagnosis of chronic tonsillitis. They think that tonsillectomy should be done only following a careful examination and in those cases in which a relation to secondary disorders can be proved. Tonsillectomy is always advisable in those patients in whom the diseased tonsils cause frequent relapses. Like most internists, the author thinks that tonsillectomy should not be done during an acute attack, but that from four to six weeks should elapse after an attack, before it is done. An early operation is advisable only when the sequelae in internal organs are constantly renewed from the tonsillar focus, or when there is danger of sepsis. It should not be overlooked that early operations may lead to serious exacerbations of arthritis, sciatica, nephritis or other disorders. Tonsillectomy, when performed after the acute manifestations of the disease have disappeared, as for instance in relapsing tonsillitis, in acute articular rheumatism and after a nephritis, has only prophylactic value. In chronic nephritis, tonsillectomy is not advisable. Occasionally severe complications such as pneumonia or sepsis develop after removal of the tonsils, and even fatalities have been observed. This is another reason why indications and time for tonsillectomy should be carefully considered.

Mice as Indicators of Presence of Carcinogenic Noxae.—Teutschlaender states that a mouse that had been caught in a briquet factory had numerous tumors and warts. Microscopic examination of the tumors revealed that they were squamous cell epitheliomas, and the warts were found to be precancerous formations. The growths were like the tar or pitch cancers that are produced experimentally by the application of tar to the skin of mice. That the growths had been caused by pitch dust is proved by their morphologic identity with the pitch warts and pitch cancers in some of the workers of the factory, as well as by the presence of pitch dust in the fur of the animal and by blackish pigment in the Kupffer cells in the liver. The spontaneous pitch cancer in the mouse indicated the presence of carcinogenic noxae in the factory. The author thinks that since a mouse develops cancer after being exposed only for several months, while in human beings cancer develops only after several years of exposure, it would be advisable to keep white mice as controls in factories in which gas or dust is present, the pathogenicity of which cannot be absolutely denied. The careful examination of the mice after a certain time of exposure would reveal whether noxae are present or not, or whether the protective measures are effective. In so-called cancer houses, that is, in dwellings which rightly or wrongly are reputed to cause cancer in those who live in them, cages with mice should likewise be kept. In this manner not only could the etiology of cancer be investigated but it would also be possible to take prophylactic measures. The author comes to the conclusion that, since it is possible to prove the existence of cancerous noxae in a factory before a human being develops cancer, simply by keeping control mice, it is no longer pardonable to omit this experiment and wait until the workers develop cancer.

Medizinische Klinik, Berlin

26: 1845-1880 (Dec. 12) 1930

Diagnosis of Pregnancy. H. Sellheim.—p. 1845.
Active Immunization Against Diphtheria: Testing and Evaluation of Vaccines. W. Kolle.—p. 1848. C'cn.
Heredity: Theory of Hybridogenic Genasthenia and of Addition of Chromosomes. A. Tschermak.—p. 1851.
*Differential Diagnosis Between Myeloid Leukemia and Cancerous Metastases. F. Erdstein and R. Kienböck.—p. 1853.
Combination Anesthesia with Tribromethanol and Nitrous Oxide-Oxygen. H. Flörcken.—p. 1854.
Blood Picture and Composition of Blood in Hepatic Icterus. I. Kirsten and E. Papenkort.—p. 1855.
Hemoptysis in Mitral Insufficiency and in Mitral Stenosis. Vieten.—p. 1857.
Torsion of Pedicle of Appendix Epiploica. W. Stutte.—p. 1858.
Treatment of Scleroderma with Pancreatic Ferments. J. Sellei.—p. 1859.
Heart Action During Balneotherapy in Patients with Rheumatism. S. Löwy.—p. 1860.
Clinical Significance of "Theoretically Normal" Specific Gravity of Urine. O. Weltmann and K. Tschilow.—p. 1861.

Differential Diagnosis Between Myeloid Leukemia and Cancerous Metastases.—Erdstein and Kienböck report the case of a woman, aged 51. Before she came under their observation she had been examined by several physicians. On the basis of the symptoms her ailment had been diagnosed as pernicious anemia, and following a blood count leukemia was thought of. The roentgen examination finally revealed cancerous metastases in the lymph nodes and in the lungs. The authors point out that the differential diagnosis between myeloid leukemia and cancer metastases is sometimes difficult, because some cancers cause an irritation of the bone marrow and thus lead to leukocytosis. Roentgenoscopy of the thoracic organs is often helpful in detecting metastases. However, neither the blood picture nor roentgenoscopy is helpful in determining the hidden primary tumor.

Mitteilungen a. d. Grenzgeb. d. Med. u. Chir., Jena

42: 143-262 (Dec. 18) 1930

Vermiform Appendix: Pathology of Motor Apparatus. R. Rössle.—p. 143.
*Infantile Hereditary Thrombasthenia. A. Fonio.—p. 166.
*Changes in Vertebrae in Carcinosis. A. Scholtz.—p. 178.
*Staphylococcal Sepsis: Clinical Aspect and Treatment. W. Felsenthal.—p. 185.

Infantile Hereditary Thrombasthenia: Blood Status and Coagulation.—Fonio reports a case of infantile hereditary thrombasthenia (Glanzmann) in a child aged 4 years. The number of blood plates was increased from 250,000 to 700,000, the bleeding time was prolonged and the retractility of the blood clot was decreased. The disturbance of coagulation lay in the third phase and was caused by an insufficiency of the individual blood plate. The first and second phases of coagulation proceeded in the normal manner. The thrombocytosis represented an attempt on the part of the bone marrow to compensate for the insufficiency of the blood plates. The insufficiency was apparent in dry smear preparations. The blood plates were distributed regularly over the field of vision as in a magnesium sulphate preparation. The complete absence of clumping indicated athrombosis. The blood plates were round or oval and sharply outlined forms; drop forms and projections, which are considered manifestations of the tendency to clumping, were extremely rare. They were also larger than normal; giant forms were present in many variations. The number and arrangement of the granules were variable but in most of them the number was decreased. Many of the blood plates contained vacuoles.

Changes in Vertebrae in Carcinosis.—On the basis of his observations in seventeen cases of carcinosis of the vertebrae, Scholtz concludes that in the differentiation of this condition from other pathologic processes with similar manifestations the examination of the intervertebral disks does not always give conclusive results. Carcinosis of the vertebrae is rarely accompanied by a gibbus. In one of the cases a gibbus was produced not by a posterior displacement of the spine of the vertebra but by the tumor. In carcinosis there frequently occurs a uniform compression of the bodies of the vertebrae. The upper and lower cortical plates of the bodies of the vertebrae possess in some of the cases a resistance to the process of destruction. The axis of the vertebral column undergoes a deformation when, as the result of the destruction of the upper and lower cortical plates, the relation between them and the intervertebral disks, which preserves the axis of the spinal column, is disturbed.

Staphylococcal Sepsis: Clinical Aspect and Treatment.—In sixty-two cases of staphylococcal sepsis studied by Felsenthal, the condition was caused by *Staphylococcus pyogenes-aureus* fifty-one times and by *Staphylococcus pyogenes-albus* eleven times. Fourteen of the patients recovered. The portal of entry of the causal organism was demonstrated in 56 per cent of the cases. In 72.58 per cent of the patients it was in the form of an injury of the skin, furuncle or panaritium,

in 20.97 per cent it was located on a mucous membrane (endometrium, oral mucosa, nasal mucosa, urinary tract, tonsils) and in 6.45 per cent it could not be found. The location of the focus of sepsis was only slightly dependent on the portal of entry. The points of predilection for the localization of the causal organisms were the bone marrow (29 per cent) and the endocardium (19.4 per cent). Previous healed pathologic conditions of the endocardium and the valves of the heart did not predispose to a subsequent localization of the bacteria on them. In some of the cases the focus of infection was an abscess in the lung; in 17.7 per cent of these cases there was present endophlebitis of the branches of the pulmonary veins and secondary foci of infection. One of the characteristics of the staphylococcus is its great tendency to produce metastases; these were present in fifty-eight of the patients. The organ most frequently involved was the kidney, but the elimination of the organisms through the bile and sputum resulted also in metastatic involvement of the liver and lungs. The severity of the condition was dependent on the location of the primary focus and the location and number of metastases. In the treatment of the condition, a silver preparation was used in sixteen cases with two recoveries and neoarsphenamine in twenty cases with two recoveries. Protein therapy proved ineffective in four cases and autovaccines in five cases. Surgical treatment was used in twenty-seven cases with nine recoveries. The results were particularly good following the surgical treatment of foci of infection in the extremities and following drainage in pleural empyema.

Monatsschrift für Kinderheilkunde, Leipzig

48: 481-576 (Dec.) 1930

*Action of Hypertonic Solutions of Sugar in Toxicosis. K. Choremis. —p. 481.
Problems in Pediatrics. C. Coerper.—p. 485.
*Blood Picture in Initial Fever in Tuberculosis. L. Arany.—p. 492.
*Concurrence of Different Forms of Tuberculosis in Twins. C. Stamm. —p. 497.
Action of Galactose on Increase in Weight of Nurslings. G. Bischoff. —p. 500.
*Simple Formula for Calculating Normal Body Weight of Children. W. Herrmann.—p. 506.
Influence of Milk Containing Iodine in Tuberculosis. L. Eöry and S. Eöry.—p. 509.
"Hepatic Infantilism": Case. F. Thoenes.—p. 515.
Anorexia in Children. L. Moll.—p. 525.

Action of Hypertonic Solutions of Sugar in Toxicosis.—In the treatment of a large number of infants with toxicosis, Choremis compared the effects of subcutaneous injections of hypertonic and of isotonic solutions of dextrose. In infants who had formerly lost a great deal of weight (from 400 to 500 Gm. in twenty-four hours), regardless of whether they were in a markedly toxic condition or not, it was noted that from ten to fifteen minutes following the subcutaneous injection of from 80 to 100 cc. of a 10 or 15 per cent solution of dextrose the infants became extremely restless and could not sleep. In the severe form of reaction, of which three instances were observed, motor unrest and even convulsions appeared. The infants became pale and had cold sweats, labored respiration and an exacerbation in their general condition. The pulse was small and filiform. In one case, meningeal manifestations appeared and the general condition of the patient became much worse. The same changes were noted in atrophic children following subcutaneous injections of a hypertonic solution of dextrose and were in marked contrast to the effects produced by subcutaneous injections of an isotonic solution of dextrose. From ten to fifteen minutes following the injection of an isotonic solution of dextrose the infants became quieter, slightly apathic and sleepy. This condition lasted two or three hours. The author believes that the harmful effects of subcutaneous injections of hypertonic solutions of dextrose in toxicosis are the result of their osmotic action; from the already dehydrated organism still more water is withdrawn and the result is an intensification of the exsiccosis. In the treatment of toxicosis in infants by means of subcutaneous injections of a solution of dextrose he now uses only an isotonic solution.

Blood Picture in Initial Fever in Tuberculosis.—Arany designates initial fever in tuberculosis as the fever that appears between the time the infection is incurred and the time the tuberculin reaction becomes positive. The average incubation period is from three to seven weeks and the fever lasts from four to eight, more rarely from fifteen to twenty, days. In the examination of the blood of five children during this period it was found that in all five there was a slight leukocytosis, absolute and relative neutrophilia and lymphopenia. The neutrophils showed degenerative changes (variations in the granulation of the cells, toxic granulation, vacuoles in the plasma and markedly pyknotic nuclei). The changes were not as well developed as those that are noted in septic conditions but were definite. Whereas in the leukocytic formula the regenerative displacement was slight, in the erythrocytes the polychromasia and basophil granulation were more marked than they were in the common infections of children.

Concurrence of Different Forms of Tuberculosis in Twins.—Stamm cites an instance of the concurrence of different forms of tuberculosis in a pair of binovular twins. The two infants had been exposed to the same source of infection. The one developed a tuberculosis of the lung and hilus together with an erythema nodosum and the other developed a miliary tuberculid. In the first infant the tuberculin reaction was strongly positive but in the second infant it was negative. The negative tuberculin reaction in the infant with the miliary tuberculid is explained by the development of an anergy such as is noted in measles.

Simple Formula for Calculating Normal Body Weight of Children.—For calculating the normal body weight of children aged from 1 to 12 years, Herrmann recommends the formula $y = 2x + 8$, in which y is the body weight in kilograms and x the age of the child in years.

Münchener medizinische Wochenschrift, Munich

77: 2175-2214 (Dec. 19) 1930

*Diagnosis and Treatment of Postoperative Peptic Ulcer of Jejunum. T. Fohl.—p. 2175.
Roentgen Demonstration of Urinary System by Means of Iopax. H. Nahrath.—p. 2178.
Epidemic of Paratyphoid B Schottmüller. A. Pierach.—p. 2181.
Treatment of Experimental Tetany in Animals by Means of Calcium Gluconate. A. Wittgenstein and A. Gaedertz.—p. 2183.
Cancers of Uterus: Etiology, Frequency and Treatment. F. G. Dietel and I. Steffan-Eisen.—p. 2183. C'cn.
*Methods of Cervical Dilation and Treatment of Abortion. F. H. Bardenheuer.—p. 2186.
*Mode of Action of Commonly Used Depilatories. L. Abramson.—p. 2187.

Postoperative Peptic Ulcer of Jejunum.—Fohl asserts that the postoperative peptic ulcer is most frequent after gastro-enterostomies. Hyperacidity is also an essential factor, for in hypacidity and in anacidity, peptic ulcers are not noted after gastro-enterostomy. However, gastro-enterostomy is not the only operation that leads to peptic ulcer of the jejunum. The exclusion of the pylorus according to von Eiselsberg's method may likewise be followed by it. In fact, not a single method of resection excludes the possibility of a postoperative peptic ulcer. The first method of Billroth is perhaps the method after which peptic ulcers are rarest. The only real protection against peptic ulcers in the jejunum is gastroduodenostomy, because this operation does not expose the jejunum to hyperacidity. The diagnosis of postoperative peptic ulcer of the jejunum is difficult because of the absence of a pathognomonic sign. In many cases the symptoms are the same as those in cases of gastric or duodenal ulcer. However, if the anamnesis reveals that a gastro-enterostomy or an exclusion of the pylorus has been done before, the following signs indicate a peptic ulcer of the jejunum: (1) a localized deep pain in the left mesogastric region, (2) occult and spontaneous hemorrhages, (3) dynamic disturbances in the evacuation of the stomach and intestine and occasional vomiting. In regard to the treatment of the postoperative jejunal ulcer, the author states that conservative treatment is never advisable and surgical treatment should be given immediately. There is no special operative method for the postoperative peptic ulcer. The surgical treatment is always corrective, and its aim should be not only to remove the ulcer but also to correct the abnormal anatomic conditions created in the first operation. The author discusses several possibilities and then gives the detailed report of one case. The operative mortality is of course comparatively high; however, if the operation is successful, the prospects for permanent results are good. In order to prevent postoperative

ulcer it is of greatest significance not to perform a gastroenterostomy or an exclusion of the pylorus when hyperacidity exists.

Methods of Cervical Dilation and Treatment of Abortion.—Of the various methods that are employed for dilation of the cervix uteri Bardenheuer mentions metal dilators, laminaria tents, tamponade, metreurynters, surgical interventions such as incision of the os uteri or of the cervix, and digital dilation. The numerous methods show that there is a difference whether the dilation is performed during the nonpregnant condition, in the early months of pregnancy or in the later months of pregnancy. The author discusses mainly the treatment of abortion and of premature births. In the nonclinical treatment of abortion, vaginal tamponade is generally done. However, it has the disadvantage that the stasis caused by the tamponade may lead to infection. For this reason the tamponade should never be maintained longer than twelve hours. The author further discusses the advantages and disadvantages of laminaria tents. Dilation by means of the metranoikter he considers as one of the best methods. He employed it in forty-two cases; namely, in twenty-five abortions, in five interruptions, and in twelve cases of dysmenorrhea or for exploration of the uterus. The metranoikter and its manipulation are described, and it is stated that the use of this instrument produces regular uterine contractions. In from six to fifteen hours the cervical canal has been dilated so that it is passable for one or two fingers. The main advantage of this method over tamponade or over the use of tents is that it permits the continuous discharge of uterine excretions. In several cases it was noted that the fetus or the placenta had been discharged through the open blades of the instrument into the vagina. The author advises against ambulatory use of this method, because rest in bed is necessary. However, the metranoikter may safely be employed by the general practitioner in the private home.

Mode of Action of Commonly Used Depilatories.—Abramson points out that for most depilatories the claim is made that they have a more lasting effect than shaving, and that if they are used systematically for a longer period they will effect a permanent depilation without injuring the skin. The author investigated the mode of action of depilatories on animals and on human beings. He found that the depilatories do not influence the intracutaneous portion of the hair but that they become effective by a process of swelling which after from five to ten minutes makes the hairs brittle, so that they break off. The horny layer of the skin is at first not injured. However, after several applications inflammation and eczematization sets in. In their effect on the growth of the hair the depilatories do not differ from shaving. An increased growth of hair after one or several applications could not be detected when compared with shaving. On account of the eczematization of the skin that follows after repeated applications, the use of depilatories for therapeutic purposes should be limited. Depilatories may be used (1) for depilation in regions that are not readily accessible for razor and scissors, as for instance in the axilla, (2) in diseases of the skin or hair in which removal of hair is therapeutically desirable but in which shaving is not advisable, for instance, in folliculitis barbae et capitis. In trichophytosis of the head or of the beard, depilatories might be better than shaving because they prevent more effectively a spreading of fungi and a reinfection of the hairs. However, in both cases depilation is usually insufficient.

Wiener klinische Wochenschrift, Vienna

43: 1525-1556 (Dec. 11) 1930

*Operative Treatment of Goiter. B. Breitner.—p. 1525.
Extrasystole and Automatism. D. Scherf.—p. 1527.
*Existence of a Hypotensive Pancreatic Hormone. P. Gley and N. Kisthinios.—p. 1530.
Local Anesthesia in Operative Treatment of Cancer of Rectum. F. Mandl.—p. 1536.
Nature and Various Forms of Angiomatosis. K. Ullmann.—p. 1538.
Tuberculosis in Nurslings. A. Götzl.—p. 1542.
Idem. S. Feilendorf.—p. 1543.

Operative Treatment of Goiter.—Breitner thinks that surgical treatment is not resorted to often enough, or it is used too late. At any rate, these mistakes are more frequent than the premature or unnecessary performance of an operation. Surgical treatment is absolutely necessary in goiters that cause stenosis. Three cases are reported that illustrate how much needless suffering is due to a delayed surgical intervention. In cases of goiter in which a hyperfunctioning of the thyroid exists, surgical treatment is indicated whenever a conservative treatment of the thyrotoxic manifestations is without effect or when frequent relapses occur. In regard to iodine therapy the author states that in thyrotoxic conditions iodine therapy is not advisable; however, administration of iodine preparatory to operations is helpful. The method of operation and the skill of the surgeon are of the greatest significance. Unilateral resection is not advisable. For especially difficult cases the author recommends the "incomplete operation according to Crile." However, if operation is preceded by iodine therapy, this is rarely necessary. The duration of the operation is of greatest significance. Greater rapidity gives the better result.

Existence of Hypotensive Pancreatic Hormone.—Gley and Kisthinios point out that some insulin preparations cause a reduction of the blood pressure. Tests revealed that the substance which reduces the sugar content of the blood does not have the hypotensive effect but that the sugar reducing hormone and the pressure reducing hormone are two different substances, and that insulin preparations which have a blood pressure reducing effect have not been sufficiently purified. The authors point out that it has long been known that the pancreas contains a blood pressure reducing substance; however, they were the first to isolate it. Further efforts were made to determine the nature of the blood pressure reducing substance. It was found that its effect is not due to the presence of choline, histamine or peptone but that the pancreatic hypotensive substance is capable of neutralizing the hypertensive action of epinephrine. It was also noted that the acute pulmonary edema that develops in animals that have been poisoned with epinephrine does not develop if the animals have been protected by an injection of the blood pressure reducing, pancreatic hormone.

43: 1557-1588 (Dec. 18) 1930

Sympathetic Nervous System. L. Schönbauer.—p. 1557.
New Method of Dialysis. E. Freund.—p. 1562.
*Obstetric Shock. N. Alders.—p. 1562.
Value of and Indications for Newer Anesthetics in General Surgical Practice. F. Starlinger.—p. 1565.
*Use of Remedies of Apparently Antagonistic Action in Treatment of Gastric Disturbances. L. von Friedrich.—p. 1569.
Hypertonia of Arteries. J. Pal.—p. 1570.
Sepsis Problem. P. Saxl.—p. 1571.
Pharmacotherapy During Childhood. H. Januschke.—p. 1572.

Obstetric Shock.—Alders limits the term obstetric shock to a condition that is usually characterized by paleness, cyanosis, fainting, decreased blood pressure, profuse perspiration and air hunger, and which develops one or several hours after labor without there being an anatomic foundation and without immediately preceding mechanical or chemical irritation, but caused only by a spontaneous change in the distribution of the blood. This disease corresponds to the condition that surgeons term secondary wound shock. The author does not wish to combine in the term obstetric shock all shock conditions, regardless of etiology, that develop after labor, but he wishes to distinguish between shock after labor and obstetric shock. He mentions the various conditions to which the term should not be applied. The exclusion of all these conditions limits the term obstetric shock to rare cases. In an obstetric clinic in Vienna, among 24,800 confinements there were only six such cases. However, this number applies to severe cases, and it is possible that obstetric shock of minor severity is more frequent. The author gives several case reports and then discusses the pathogenesis of obstetric shock. He thinks that obstetric shock is a manifestation of toxicity due to products of decomposition of proteins; in short, a toxemic wound shock. For the treatment of obstetric shock he recommends blood transfusion or intravenous injection of from 300 to 500 cc. of a 10 to 20 per cent solution of dextrose.

Remedies of Apparently Antagonistic Action in Treatment of Gastric Disturbances.—Von Friedrich points out that generally, when several remedies are used together, those of synergistic action are combined. Remedies with an antagonistic action or with an apparently antagonistic action are rarely used together. However, such combinations are not entirely unknown. Von Noorden and Salomon, for instance, recommend the combined use of hydrochloric acid and sodium carbonate in

subacidity and anacidity, when the patient is troubled with heartburn. The author describes another example of antagonistic therapy. In some instances of gastric catarrh in which the roentgen examination gives negative results and in which subacidity or anacidity exists and pathologic changes in the gallbladder may be excluded, the patients frequently complain of pain in the epigastric region and behind the sternum, immediately after eating. Medication with hydrochloric acid and pepsin is often not sufficient because the pains are extremely persistent. In such instances the author attempted the combined application of hydrochloric acid and atropine. These two medicaments appear to work antagonistically. The solution of hydrochloric acid and pepsin serves as a substitute for the deficient gastric secretion. It is known that atropine by its influence on the vagus suppresses the gastric secretion. However, the author found that small doses of atropine cause a temporary stimulation of the muscles of the stomach without influencing the function of the pylorus, and the gastric secretion is likewise not influenced. The small doses of atropine should be taken before the meal, whereas hydrochloric acid should be taken in large doses during the meal. Dietary and other therapeutic aids do not become superfluous as a result of this therapy.

Zeitschrift f. Geburtshülfe u. Gynäkologie, Stuttgart

99: 1-198 (Dec. 30) 1930

*Pyemia: Ligation of Veins. M. Martens.—p. 1.
Id.: Early Diagnosis and Prognosis. Kriele.—p. 35.
*Leukocyte Picture in Puerperium. E. Fauvet.—p. 58.
*Puerperal Fever: Prognostic and Diagnostic Significance of Chills. G. Schäfer.—p. 71.
Microscopically Nonspecific Granuloma of Vulva: Case. W. Haupt.—p. 95.
Pregnancy Reaction of Gonads of the New-Born. H. O. Neumann.—p. 100.
Hereditary Transmission of Tendency to Twin Pregnancy. G. Dahlberg.—p. 136.

Pyemia: Ligation of Veins.—Martens discusses the results he has obtained in the treatment of puerperal pyemia by means of venous ligation. He believes that puerperal pyemia is caused by a septic thrombophlebitis. The diagnosis is made on the basis of the anamnesis, the temperature curve, the pulse curve, the blood picture (shifting to the left), the thrombocytopenia, the erythrocyte sedimentation speed, the decreased hemoglobin content of the blood, the general condition of the patient and the results of palpation. At times the positive demonstration of the continuous and increasing bacterial content of the blood is of value but the negative observation is not. Because of the inefficacy of all other forms of treatment and the rarity of spontaneous recoveries, venous ligation should be performed as soon as the diagnosis is made. The extraperitoneal procedure is to be preferred. As a rule the extirpation of the diseased veins is unnecessary. Concurrent parametric or periphlebitic abscesses and phelgmons should be opened and drained when the veins are ligated. If it is evident that the involvement is unilateral, the veins of only one side should be ligated, particularly if the general condition of the patient is poor. If, however, the pyemia continues following unilateral ligation, another operation should be performed and the veins on the other side should be ligated. The operation is not contraindicated even in the presence of metastases.

Leukocyte Picture in Puerperium.—According to Fauvet, labor produces a leukocytosis accompanied by acidosis. The most noteworthy feature of the leukocytosis is the increase in the polymorphonuclears, which in most of the cases show a marked shifting to the left. The number of lymphocytes and eosinophils is greatly decreased. After a few days the number of polymorphonuclear leukocytes returns to normal and the number of eosinophils is increased. In the first four days the number of neutrophils and lymphocytes shows a relative increase but by the end of that time the number has returned to normal. From the fifth day the reaction of the blood is normal but the blood picture shows a marked lymphocytosis for a few days. The causes of these changes are the retrogressive processes in the uterus which impose increased demands on the mesenchyme and the lymphocytic elements of the peripheral blood. These changes represent what occurs under completely normal conditions. Emphasis is laid on the extremely delicate reaction capacity of the blood and on the fact that slight disturbances in the puerperium are frequently accompanied by marked variations in the blood picture. This fact should be given particular consideration with reference to the prognostic significance of the blood picture in the puerperium.

Puerperal Fever: Prognostic and Diagnostic Significance of Chills.—Schäfer asserts that the occurrence of only one or two chills in puerperal fever is of favorable prognostic import because they indicate a reaction in which the infection is rapidly overcome. Beginning with the third chill, the mortality increases. The number of chills varies within wide limits. The longer the time that elapses before the appearance of the first chill, the more favorable is the prognosis. If the series of chills does not begin until after the first week post partum, the mortality is extremely low. The more frequent and longer the intervals are between the chills, the lower is the mortality. A fever that persists during the intervals between the chills is not of diagnostic or prognostic significance. As a basis for comparison of the pulse curve, a pulse rate of 120 is given. The chill is neither a specific symptom of pure pyemia nor proof of the absence of sepsis. A large proportion (30 per cent of an average) of all puerperal infections extend simultaneously through the lymphatics and through the blood. With an increasingly large number of chills, a hematogenous extension becomes more and more probable. When the number of chills exceeds ten it is probable that an originally purely pyemic process has become converted into a septic one by inflammatory erosion of the walls of the blood vessels. The number of the chills and their sequelae are not dependent on the kind of bacteria present. Manual separation of the placenta and palpations during the puerperium cause a high percentage of pyemic processes.

Zeitschrift für urologische Chirurgie, Berlin

31: 1-62 (Dec. 18) 1930

Renal Dystopia: Etiologic Factors. K. von Wolff.—p. 1.
Hematuria in Undulant Fever: Case. O. Hennig.—p. 17.
*Ureteral Calculi: Conservative Treatment. I. S. Tschernjak.—p. 20.
*Metastatic Carcinoma of Bladder. G. Bodon.—p. 40.
Phimosis: Plastic Operation. E. Sereghy.—p. 48.

Ureteral Calculi: Conservative Treatment.—On the basis of the good results he obtained with solution of pituitary in nine of eleven cases of ureteral calculi and the unsatisfactory results in three cases of calculi of the renal pelvis, Tschernjak concludes that, since this preparation increases peristalsis in the ureters and produces peristalsis in cases in which the strength of the muscle has been exhausted, it is a highly valuable aid in the treatment of ureteral calculi that are not too large. Under its influence there occurs an increased elimination of salts and other pathologic products out of the urinary tract. Solution of pituitary does not have an appreciable action on calculi in the pelvis of the kidney. In the treatment of ureteral calculi with solution of pituitary one must consider the tonus of the smooth muscle, which is under the influence of the sympathetic nervous system, and modify it with morphine, camphor and atropine preparations. The injections may be given close together or at long intervals. Solution of pituitary may be given prophylactically following the removal of calculi from the pelvis of the kidney and should be tried also in stasis manifestations in the pelvis of the kidney and in atony of the ureter.

Metastatic Carcinoma of Bladder.—Bodon emphasizes the extreme rarity of cancer of the bladder secondary to cancer of a distant organ. He reports the case of a woman, aged 48, whose left breast had been amputated five years previously for cancer. Two weeks after admission to the hospital she died under the signs of increasing cardiac weakness. Postmortem examination revealed that the bladder was enlarged. In the mucosa there were numerous white, slightly projecting cancer nodules with many small hemorrhages, chiefly on the edge of the nodules. Numerous tumor nodules were present also in other parts of the body. From the macroscopic picture it was clear that all the cancer nodules were metastases from the cancer of the breast that had been removed five years previously. Microscopic examination revealed that the metastasis to the bladder had occurred through the lymphatics. From the breast the cancer had extended to the axillary and pectoral lymph nodes. From here the tumor cells had passed through connecting lymphatics into the bronchial and tracheal lymph nodes and from these to the nodes at the arch of the aorta. The tumor

had then extended retrogradely through the retroperitoneal aortic lymph nodes to the hypogastric nodes. Through the lymphatics of the true pelvis it had extended to the bladder.

Zentralblatt für Chirurgie, Leipzig

57: 3089-3152 (Dec. 13) 1930

*Relation of Trauma to Appendicitis. F. Eicken.—p. 3095.
New Extension Apparatus for Treatment of Fractures and Dislocations. Y. Azuma.—p. 3097.
*Relative Frequency of Cancer of Breast in Married and in Unmarried Women. O. Pikkarainen.—p. 3099.
Differential Diagnosis Between Congenital Dislocation of Hip and Congenital Coxa Vara. H. Krukenberg.—p. 3108.
*Obesity Associated with Exophthalmic Goiter. S. Portugalow.—p. 3109.
Case of Phlegmon of Stomach. O. Bsteh.—p. 3116.
*Case of Traumatic Thrombosis of Portal Vein Terminating in Recovery. P. Rupprecht.—p. 3118.
*Double Appendix: Is There Such an Entity? W. Goldschmidt.—p. 3123.

Trauma and Appendicitis.—Eicken is not convinced that trauma causes appendicitis. He cites the case of an athlete who sustained a severe jolt of the abdomen, especially on the right side, while performing on an apparatus in the gymnasium. He had seemingly been in good health, except for some discomfort in the right inguinal region and irregularity of bowel movement. Immediately after the accident, he developed symptoms that led to a diagnosis of acute appendicitis, probably of traumatic origin. At the operation the appendix appeared to be quite normal in appearance but not in position. It was of the recessus retrocaecalis type with the tip adherent in a peritoneal pocket. The important feature of this case was that when the abdomen was opened a tear extending one-third the width of the muscle was found in the right rectus muscle. The sheath of the muscle was intact, but a small hematoma underneath shining through led to the discovery of the tear in the muscle. Further examination of the appendix failed to disclose anything abnormal. The author points out that here is a case in which the trauma might have been charged with producing appendicitis, but there was no appendicitis. The abnormal location of the appendix would account for the symptoms present before the trauma, and the rupture of the rectus muscle would account for the subsequent symptoms, although these pointed rather definitely to appendicitis—especially the leukocytosis, the resistance in the McBurney area, and a positive Rovsing sign. Hence, it is pointed out, in all cases of abdominal injury it is important to rule out possible injury of the rectus muscle.

Incidence of Carcinoma of the Breast in Married and in Unmarried Women.—Pikkarainen quotes figures to show that the incidence of breast carcinoma is relatively greater in unmarried than in married women, at least in Suomi, Finland, whence Kalima analyzed 600 cases in 1914. The author reviews these 600 cases and adds 505 of his own cases and reaches a similar conclusion but specifies that this applies only to women from 35 upward. In the half decades 25-30 and 30-35, the opposite is the case. He contends, therefore, that lactation cannot be regarded as a contributory cause to the development of breast cancer.

Obesity Associated with Exophthalmic Goiter.—Five cases of obesity occurring among eighty-six cases of exophthalmic goiter are the basis of Portugalow's paper. The ages of the patients varied from 19 to 25. They were all women. He believes that endocrine dysfunction as a whole is the cause of the obesity.

Traumatic Thrombosis of Portal Vein.—Rupprecht cites the case of a man who, while caring for a horse, was kicked in the abdomen by the animal and fell into an adjoining stall. He was slightly breathless when on his feet again but returned to his work. Six days later he collapsed, losing consciousness. He was taken to the hospital. Examination disclosed extreme distention of the abdomen, meteorism in the flanks, extreme sensitiveness to touch, ascites increasing rapidly in degree, and pain over the spleen. Six liters of fluid was withdrawn. The liver could now be felt to be considerably swollen. Next the legs became edematous and then the scrotum, the latter extremely so. The patient also complained of stomach distress. The scrotum became gangrenous and the left testis had to be removed. Within sixty days after the accident, the superficial abdominal veins began to distend and eventually a well formed caput medusae was present, the lowermost veins measuring two fingers in size. The abdominal fluid had to be withdrawn repeatedly for a period of five years, the amount withdrawn varying considerably. The greatest quantity of fluid obtained was 36 liters. Finally the ascites ceased and the patient is now, ten years after the accident, apparently in good health. No operation was performed; therefore this must have been a case of development of sufficient collateral circulation to take care of the thrombosed portal vein.

Double Appendix.—Goldschmidt warns against accepting with too much credulity the statement that a double appendix ever is present. He points out how such a mistake may be made and questions seriously the existence of such an entity. He cites a case in which there was apparently a double appendix, but on careful examination it was shown quite definitely that during a previous attack of appendicitis the organ had become attached at its tip to the wall of the cecum and that a pathologic amputation had occurred later, thus leaving seemingly two appendixes.

Zentralblatt für Gynäkologie, Leipzig

54: 3137-3200 (Dec. 13) 1930. Partial Index

Submucous, Cavernous Hemangioma of Uterus. G. H. Bartsch.—p. 3138.
Rectal Gonorrhea in Women. N. Temesvary.—p. 3140.
Late, Postpartum Hemorrhages. P. Weiss.—p. 3146.
Unequal Development of Fetuses in Plural Pregnancy. H. Uffenorde.—p. 3156.
*Cesarean Section with Abdominal Amputation of Corpus, Shortly Before or During Labor, in Cases of Impacted Myoma. M. Samuel.—p. 3164.
Two New Devices for Minor Gynecology: Vaginal Occlusion Tampon and Cup Pessary. A. Stern.—p. 3166.

Cesarean Section with Abdominal Amputation of Corpus, Shortly Before or During Labor, in Cases of Impacted Myoma.—Samuel stresses that, in certain cases of impacted myoma, a cesarean operation with amputation of the corpus uteri is advisable. He illustrates this in three cases. Although the literature contains reports of a number of cases of impacted myomas in which the tumor was born shortly before or during labor, so that after that the birth took a normal course, the author agrees with Albrecht, who states that if at the beginning of labor the myoma obstructs the pelvic inlet or the pelvic canal an expectant attitude is wrong. In such cases the abdominal section is necessary. A vaginal intervention is not advisable. The author asserts that it is always possible, even in cervical myomas, to amputate the uterus in such a way that a portion of the uterine mucous membrane remains. This is necessary in order to preserve the regular sexual function.

54: 3201-3264 (Dec. 20) 1930

*Influence of Renal Activity on Basal Metabolism in Gravidas. H. Krukenberg and H. Alberts.—p. 3201.
Paranephric Abscess with Perforation into Uterus and Simultaneous Pyelonephritis During Puerperium. M. Henkel.—p. 3206.
*Significance of Intravenous Pyelography for Diagnosis of Renal Tuberculosis. S. Perlmann.—p. 3208.
Function of Stump of Ureter and of Upper Urinary Passages Following Implantation of Ureter into Bladder. F. von Mikulicz-Radecki.—p. 3216.
Demel's Ureter Autoplasty with Aid of Urinary Bladder in Man. A. Baidin.—p. 3237.
Diagnosis and Therapy of Extravesical Orifice of Ureter. B. Ottow.—p. 3239.
Perforation Injury of Bladder During Abortion. K. Fett.—p. 3260.

Influence of Renal Activity on Basal Metabolism During Pregnancy.—Krukenberg and Alberts first point out that during pregnancy the basal metabolism is generally somewhat increased. They attempted to determine to what extent the renal activity of pregnant women influences their basal metabolism. Other authors who investigated the metabolism of the kidneys in animals had found that their metabolism amounts to from 7 to 8 per cent of the metabolism of the entire organism. Observations on human beings revealed that the metabolism of the kidneys amounts to from 4 to 6 per cent of that of the entire organism, whereas the weight of the kidneys is only 0.6 per cent of the body weight. The authors made their tests on fifty-nine pregnant women, all of whom were in the advanced stage of pregnancy. In order to accustom the patients to the apparatus, the basal metabolism was determined several days before the test. On the day when the experiment was made, the women were given 1 liter of weak tea. Several days before the test the diet had been protein-free. The authors give a detailed report of three cases with charts showing the basal metabolism, the

elimination of water and the specific gravity of the urine. They also give tabular reports of several other cases. They found that during the water test the basal metabolism is increased, and the cause of this is the renal activity.

Intravenous Pyelography in Diagnosis of Renal Tuberculosis.—Perlmann asserts that the favorable results of nephrectomy in unilateral renal tuberculosis are largely due to the improved methods of urologic examination. First he discusses cystoscopy and the indigo carmine test. In a large percentage of cases these two diagnostic methods are satisfactory. In other instances they cause difficulties and are therefore not advisable, and in such cases intravenous pyelography has proved helpful. The author gives several case reports which illustrate the significance of pyelography by means of intravenous administration of the contrast medium. This method is helpful in cases of unilateral tuberculosis, but it is particularly indicated in bilateral disorders, in contracted bladder, in case of strictures of the ureters or the urethra, and for control examination after unilateral nephrectomies. Intravenous pyelography is without danger for the patient and reveals the anatomic conditions of the urinary tract. However, as a functional test it is alone not sufficient, and it has to be supplemented by other methods. In patients with tuberculosis of the bladder, intravenous pyelography is much less painful than intravesical examination.

Vrachebnaya Gazeta, Leningrad

No. **21**: 1552-1629 (Nov. 15) 1930

Bacteriophage as Factor of Infection. L. Perets.—p. 1553.
Recurrences in Patients with Scarlet Fever. S. Shtern and E. Rubel. —p. 1560.
Epidemiologic Observations and Local Immunization Against Scarlet Fever. K. Turjetskiy and G. Maslovskiy.—p. 1566.
Intubation in Treatment of Laryngeal Stenosis from Diphtheria. P. Ryjov.—p. 1570.
Study of Sympathetic Neurosis. Yu. Kotikov.—p. 1576.
Present State of Serodiagnosis of Syphilis. E. Zalkind.—p. 1579.
Auto-Urinotherapy in Cases of Skin Disease. V. Tereshkovich and A. Tokarev.—p. 1583.
*Autohemotherapy in Cases of Furunculosis. A. Balmagiya.—p. 1586.
*Treatment of Anorexia in Children. I. Kazas.—p. 1588.
Gliosarcoma in Child Aged Five. V. Faybushevich.—p. 1592.
Method for Tamponade of Urethra in Cases of Chronic Gonorrhea. V. Ventsel.—p. 1596.

Results of Autohemotherapy in Cases of Furunculosis.—Balmagiya had used the treatment in ninety boys, aged from 10 to 17, pupils of a labor colony. In one group of thirty patients he used treatment with the usual remedies as, among others, painting of the furuncles with tincture of iodine, applications of compresses with Burow's solution or of moist and hot poultices. Passive hyperemia and curettage, among others, were used when the furuncle was mature. In another group of thirty patients exclusive treatment with Besredka's antivirus was used and in the remaining group autohemotherapy was tried. The treatment in the first group did not prevent the formation of new furuncles. The effect of the treatment was insignificant in the second group. It also proved to be expensive and inconvenient, since the compresses ought to be renewed every four hours. For the autohemotherapy, the blood was withdrawn from the patient's ulnar vein and injected subcutaneously, usually in the subclavicular region. The blood became resorbed in two or three days; in rare cases the resorption was slow. The amount of blood of a single dose varied from 8 to 22 cc.; the total amount of blood injected varied from 8 to 90 cc. In moderate cases, the single dose of blood was from 10 to 20 cc.; in severe cases, the dose was increased to at least 15 cc. The injections were usually given at intervals of from two or four days. The autohemotherapy resulted in a rapid healing, sometimes within three days. The autohemotherapy was well tolerated; there were neither local nor general reactions. The author stresses that the results were encouraging; besides, the treatment is within the reach of every one and therefore can be commonly used.

Pilocarpine for Treatment of Anorexia Nervosa in Children.—The pathogenesis of nervous anorexia is not yet ascertained. Nevertheless there is evidence that the fundamental cause of the disease consists in an insufficient irritability of organs controlling secretion of the digestive glands. Therefore the treatment aims to influence the peripheral ends of the secretory nerves. Administration of pilocarpine by the mouth or subcutaneously increases the secretory activity of the salivary, gastric and intestinal glands and the pancreas as well as the sweat glands. The treatment with pilocarpine was tried in forty-two children, aged from 2 to 10 years, suffering with nervous anorexia. None of the patients presented an organic disease. Pilocarpine hydrochloride was given in the form of a powder, in which it was mixed with sugar, or in an aqueous solution. A single dose varied from 0.001 to 0.003 Gm.; it was taken from fifteen to twenty minutes before meals, three times daily for three days. The results, Kazas says, were remarkable. In almost all cases the appetite became normal after three days. Only in two instances was it necessary to repeat the three days' treatment. Pilocarpine has not caused cardiac, vascular or respiratory disturbances. Later the pilocarpine was mixed with a 2 per cent solution of hydrochloric acid. The author had not had the opportunity to use the treatment in adults. Cardiac diseases, bronchial asthma and acute respiratory diseases are contraindication for treatment with pilocarpine.

Norsk Magasin for Lægevidenskapen, Oslo

91: 1299-1434 (Dec.) 1930

Physiologic Hematopoiesis and Hemolysis in the New-Born. L. Salomonsen.—p. 1299.
Reaction of Pancreas After Operations on Stomach and Biliary Tract. R. Ringdal.—p. 1317.
*Hemangioma: Six Cases. F. Harbitz.—p. 1335.
*Slight but Fatal Traumatic Hemorrhages of Brain: So-Called Duret Lesions. Medicolegal Study. O. Berner.—p. 1349. C'cn.
Treatment of Hemophilia with Vitamin Preparation. H. Bjørn-Hansen. —p. 1372.
Stieda's Lesion. W. F. Baastad.—p. 1385.
*Congenital Myatonia in Brother and Sister. K. Moe.—p. 1392.
Oldest Description of Ileus. B. Ebbell.—p. 1395.

Hemangioma: Six Cases.—Harbitz describes two cases of hemangioma of the retina (von Hippel's disease) in patients aged 17 and 55, respectively, a case of hemangioma in the cerebellum in a boy aged 16, a case of large cavernous hemangioma in the lower end of the spinal cord and cauda equina in a woman aged 41, and also two cases of multiple hemangiomas of the liver in patients aged 36 and 24, respectively.

Slight but Fatal Traumatic Hemorrhages of Brain: So-Called Duret Lesions.—Berner shows that a slight trauma may cause hemorrhages in the region around the fourth ventricle, describes the close relation between Duret's lesions and concussion of the brain, discusses the seat of spontaneous hemorrhages in the brain with especial attention to the so-called primary ventricular hemorrhages originating from the choroid plexus or a subependymal blood vessel, and treats of the probability of spontaneous origin of a hemorrhage in the fourth ventricle.

Congenital Myatonia in Brother and Sister.—Moe describes almost identical cases in children aged 5½ and 1½, respectively. The musculature of the lower limbs was so hypotonic that the patients could neither stand nor walk. The musculature of the trunk was also affected. In the one there was atrophy of the lips, muscles of the jaw and sternocleidomastoid muscles. During observation for a year, no progression was noted.

Ugeskrift for Læger, Copenhagen

92: 1151-1170 (Dec. 4) 1930

*Two Cases of Induced Psychosis ("Folie à Deux"). C. Clemmesen.—p. 1151.
Mental Weakness—Psychopathy: Remarks on Terminology. A. Wimmer. —p. 1154.
Treatment of Scabies in Frederiksborg Community. H. Boas.—p. 1155.
Lesions Due to Thermometer. H. C. Ringsted.—p. 1155.

Two Cases of Induced Psychosis ("Folie à Deux").—Clemmesen's first case, of typical communicated insanity, was in the husband of a woman in whom an acute psychosis developed after a psychic trauma and culminated in six weeks in violent psychomotor unrest and hallucinations. The husband, whose history pointed to psychopathic tendency, recovered on isolation. The second case, of induced psychosis with chronic course, occurred in a mother who so completely accepts the ideas of her son with paranoid development at the age of 28 that without knowledge of their history it would be difficult to determine which is the primary case.